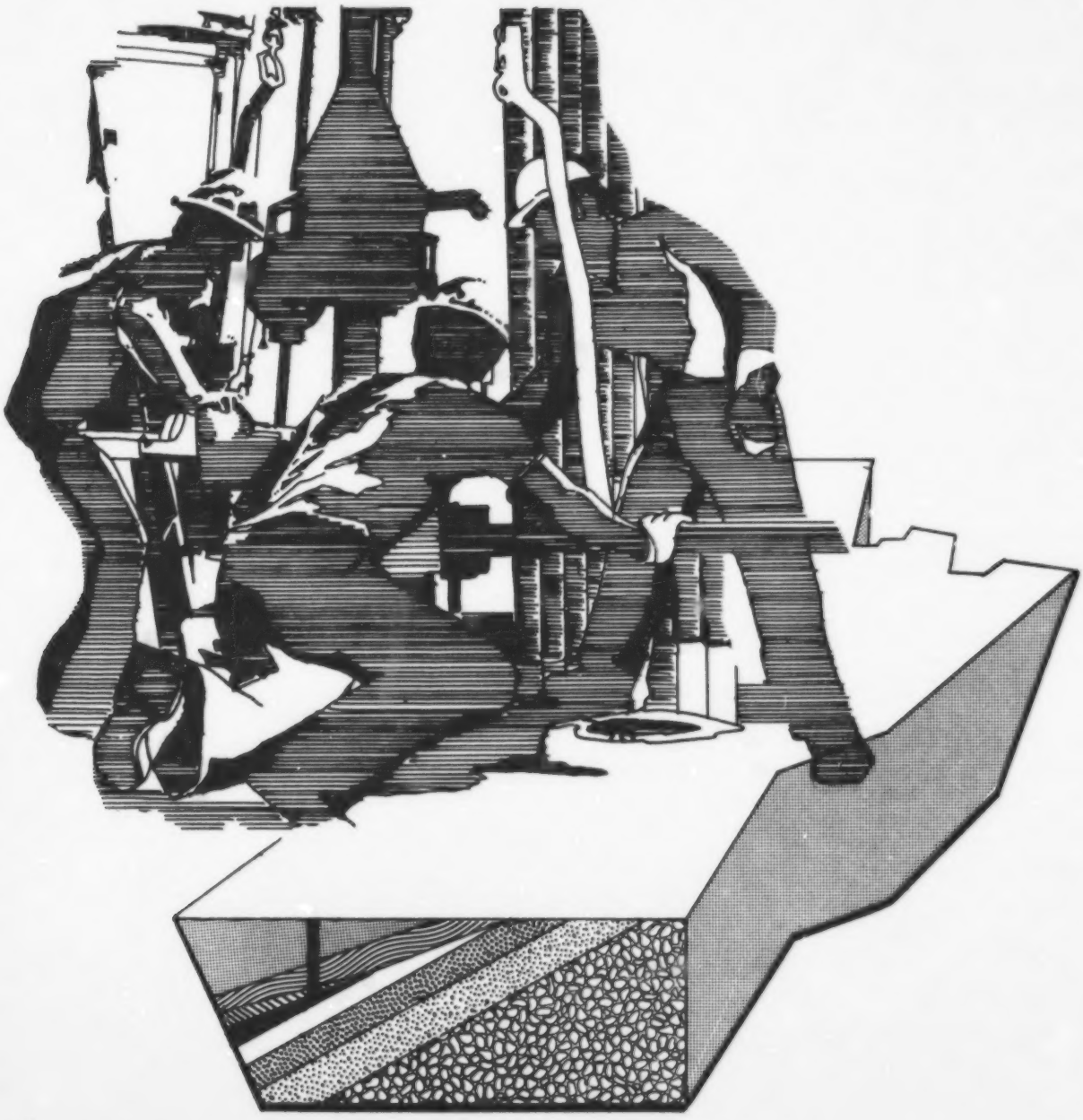
OIL ACTIVITY REVIEW 1986



Manitoba
Energy and Mines
Petroleum

Manitoba Oil Activity Review

1986

April 1987

Manitoba
Energy & Mines
Petroleum

1986 Highlights

- During 1986, 135 wells were drilled in Manitoba, resulting in a 50% decrease from 1985's total of 268 wells.

- Manitoba's annual oil production increased for the fifth consecutive year to 823 322 m^3 (5.2 million barrels), representing a .5% increase over 1985.

- The value of oil dropped to $95 million, a 47% decrease over 1985, due mainly to a collapse in world crude oil prices.

- Provincial revenues collected from the oil industry (royalties, oil taxes, lease sales, lease rentals and oil export taxes) decreased to $12.4 million during 1986, representing a 49% decrease over 1985 ($24.2 million).

- Gross royalties payable to freehold mineral owners were estimated to be $10.3 million in 1986 (Federal and Provincial tax liabilities included).

- Surface rights owners received approximately $4 million from rental payments during 1986.

- Municipal tax assessments on oilfield equipment and pipelines were estimated at over $9.0 million (with taxes paid amounting to approximately $2.3 million).

- Oil industry expenditures in Manitoba were estimated to be $86 million in 1986, a 38% decrease over 1985.

- Eight geophysical seismic programs were licensed in 1986, covering 277 kilometres at an estimated cost of $0.75 million.

- Two sales of Crown oil leases covering 7 904 hectares generated only $937,763 in revenue to the province in 1986, down 78 percent from 1985's record $4.3 million.

- Estimates of remaining recoverable crude oil reserves were calculated to be 8.45 million m^3 (53.2 million barrels) of oil as of December 31, 1986.

- As of December 31, 1986 there were 11 oil fields and 96 non-confidential oil pools designated in the province.

- Ten new and expanded waterflood pressure maintenance schemes were approved and implemented in portions of the Waskada and Virden Fields during 1986.

- One stratigraphic test hole was drilled by Canamax Resources Inc. in the fall of 1986 to evaluate a potential mine shaft in the area southwest of Russell, Manitoba.

- The Manitoba Drilling Incentive Program expired on December 31, 1986. The program had been in effect since January 1, 1979 and provided qualifying operators with special reduced Crown royalty and tax rates on new oil production.

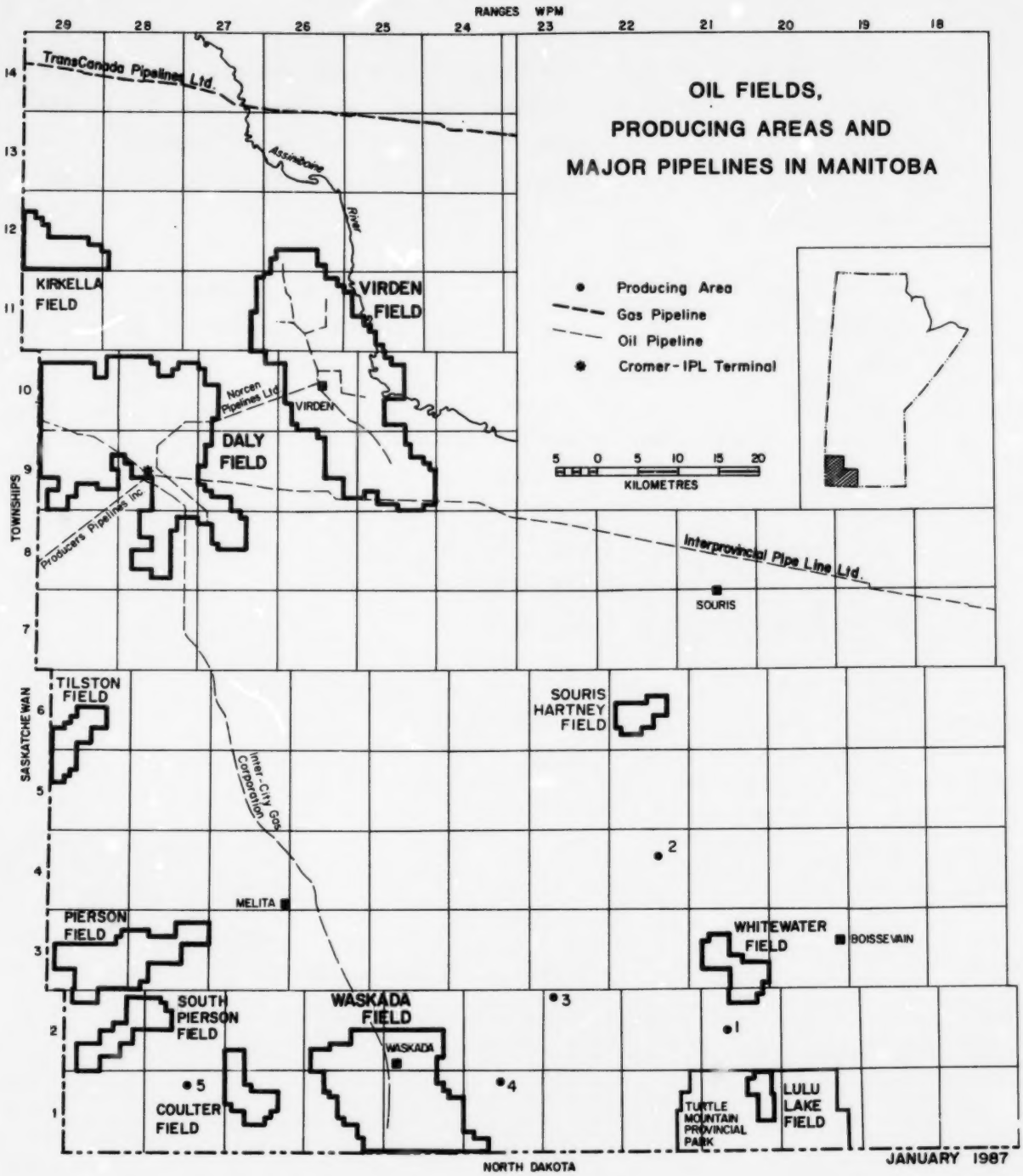
- The Oil and Natural Gas Conservation Board conducted a hearing in August, 1986 to hear an application by Chevron Canada Resources Limited for reduced well spacing in portions of the Daly Field.

- Successful well drilling in the South Pierson and south Virden Fields has sparked significant interest in the potential for additional new oil development in those areas.

- Inter City Gas Corporation undertook the construction of a 5 kilometre lateral extension to its crude oil pipe line near Waskada in 1986. The lateral when completed will connect the pipe line with Enron Oil Canada Ltd.'s battery facility located northeast of the Town of Waskada. Construction of the lateral extension is to be completed by the end of January, 1987.

- The Federal Government eliminated the Petroleum and Gas Revenue Tax on October 1, 1986 to help offset the affects of a collapsed oil price market.

- In early January, 1986 the average price of crude oil in Manitoba was $35.50/bbl. Prices continued tumbling throughout the year reaching a low of $14.03/bbl. on July 10, 1986. In December 1986, the average price of crude recovered to $19.48/bbl. In 1986, Manitoba's average price of crude oil sold slipped by 47% to $19.17/bbl, compared with 1985's average of $35.88/bbl.



OTHER PRODUCING AREAS

1. Mountainside
2. Regent
3. Deloraine
4. Goodlands
5. Lyleton

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Crown Oil and Natural Gas Lease Sales

Two Crown oil and natural gas lease sales were held in 1986. One hundred and three leases covering 7 904 hectares were sold for a total of $916,268 down sharply from 1985's total of $4.3 million.

In the first lease sale, held on May 7, 1986, the average bonus price paid per hectare was $139.08, whereas in the October 22, 1986 sale, the average bonus price decreased by 60% to $55.77 per hectare. Compared with the two sales held in 1985, the average lease bonus price in 1986 decreased by 59%, from $272.45 to $112.77/hectare.

The highest price in the May sale was $602.00 per hectare paid by Home Oil Company Limited for a 128 hectare parcel in the Pierson area. The highest price per hectare in the October sale was also paid by Home Oil Company Limited ($172.00 per hectare) for a 128 hectare parcel also located in the Pierson area.

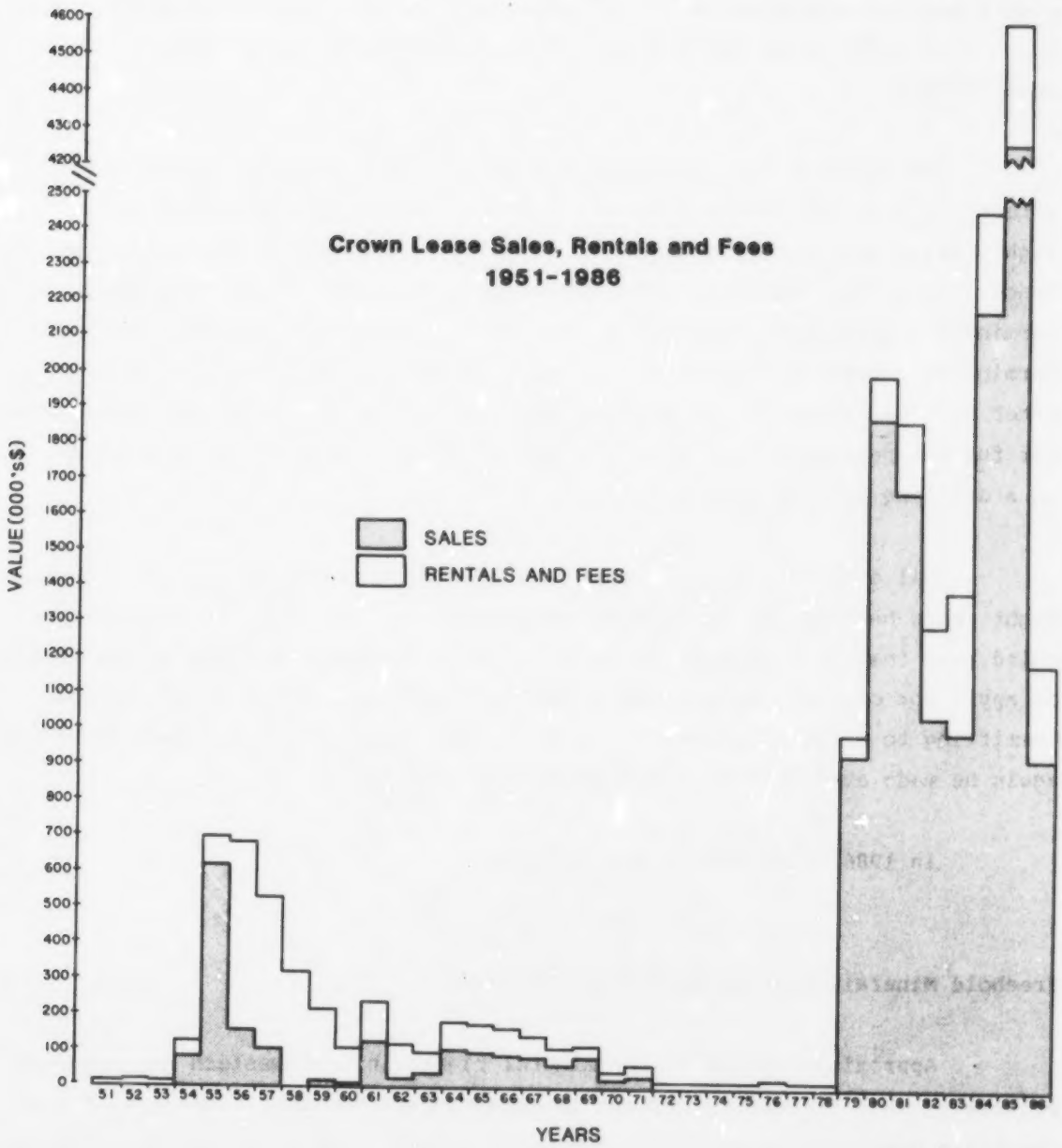
One exploration reservation covering 768 hectares was sold in 1986 for a total of $21,495.

Lease sales in 1986 generated the lowest revenue since lease sales were re-implemented in 1979.

Since Crown oil and gas lease sales resumed in 1979, the province has received $14,225,086 in revenue from the disposition of Crown oil leases and exploration reservations (refer to table for annual sale statistics).

MANITOBA CROWN OIL LEASE AND RESERVATION SALE STATISTICS 1947 - 1986

	LEASE SALES						RESERVATION SALES						
YEAR	NO. OF LEASES SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	LEASE REVENUE ($)	NO. OF RES. SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	RES. REVENUE ($)	TOTAL REVENUE FROM SALES ($)
1947-53							DATA UNAVAILABLE						
1954	31	4 184	82,814	19.79	37.37	88,291	0	0	0	0	0	0	88,291
1955	140	32 247	579,801	17.98	62.58	620,751	1	8 778	5,854	.67	.67	6,213	626,962
1956	28	4 534	43,902	9.68	79.09	49,682	4	255 016	105,587	.41	1.33	106,587	156,269
1957	16	4 568	100,373	21.97	44.71	106,174	2	48 820	3,256	.07	.08	3,756	109,931
1958	0	0	0	0	0	0	1	10 291	101	.01	.01	351	351
1959	1	777	505	.65	.65	1,475	2	11 478	11,879	1.03	2.42	12,379	13,854
1960	1	65	4,103	63.12	63.12	4,193	0	0	0	0	0	0	4,193
1961	0	0	0	0	0	0	4	50 721	134,099	2.64	6.75	135,099	135,099
1962	2	260	1,327	5.11	12.62	1,668	1	7 464	24,706	3.31	3.31	24,956	26,624
1963	63	5 055	31,614	6.25	17.30	38,468	1	3 498	1,608	.46	.46	1,858	40,326
1964	40	9 467	109,125	28.47	388.06	120,717	1	5 641	778	.14	.14	1,028	121,745
1965	42	4 347	40,235	9.26	77.60	46,024	15	92 717	52,672	.57	12.11	56,422	102,446
1966	31	4 417	24,086	5.45	64.22	29,850	6	38 689	62,886	1.63	2.08	64,636	94,485
1967	10	2 274	23,537	10.35	22.25	26,446	5	49 846	55,013	1.10	3.80	56,263	82,709
1968	19	3 599	22,630	6.29	18.92	27,265	6	46 040	31,426	.68	4.45	32,926	60,191
1969	2	970	7,164	7.39	11.94	8,382	3	16 453	75,282	4.58	7.54	76,032	84,414
1970	8	3 580	10,094	2.82	8.08	14,596	0	0	0	0	0	0	14,596
1971	2	1 230	33,673	27.38	49.75	34,308	0	0	0	0	0	0	34,308
1972-78							NO SALES						
1979	86	11 064	897,885	81.15	315.17	929,885	3	4 736	40,888	8.63	12.23	47,558	977,413
1980	80	12 540	1,057,530	84.33	470.51	1,092,880	8	15 572	820,345	52.68	100.31	841,810	1,934,690
1981	85	12 312	1,074,958	87.31	257.26	1,109,988	5	5 376	611,199	113.69	178.43	619,169	1,729,157
1982	56	6 448	1,055,668	163.72	938.88	1,074,588	0	0	0	0	0	0	1,074,588
1983	66	9 255	1,032,267	111.54	762.34	1,058,705	1	1 024	40,192	39.25	39.25	41,722	1,100,427
1984	104	8 776	2,181,499	248.58	1,411.17	2,208,639	0	0	0	0	0	0	2,208,639
1985	173	15 471	4,215,083	272.45	1,593.78	4,262,410	0	0	0	0	0	0	4,262,410
1986	103	7 904	891,358	112.77	602.00	916,268	1	768	20,285	26.41	26.41	21,495	937,763
TOTAL	1,189	165 344	13,521,231	81.78	N/A	13,871,623	70	672 928	2,098,056	3.12	N/A	2,150,260	16,021,883


Crown Lease Sales, Rentals and Fees
1951-1986
SALES
RENTALS AND FEES
VALUE (000's$)
YEARS
4600
4500
4400
4300
4200
2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86

Crown Oil and Natural Gas Leases

As of December 31, 1986, the total area of Crown oil and natural gas rights under disposition was 66 803 hectares. Of this total, 66 035 hectares were held under lease and 768 hectares were held under exploration reservations.

On December 31, 1982, deeper rights renewal provisions came into effect for pre-1979 leases. Under these provisions, non-productive areas and rights below the producing formation revert to the Crown at the end of the lease term. From January 1, 1983 to December 31, 1986, these regulatory termination provisions resulted in 231 leases covering 31 546 hectares being terminated. These cancelled rights again become available for leasing by other parties interested in actively developing them. A lease may be extended for further periods of one year if a rental penalty is paid and a commitment to a drilling program is made.

Oil and natural gas leases have initial terms of five years. Because eight years have passed since lease sales were resumed in 1979, 1986 was the third year that post-1978 lease holders had to surrender non-productive leases or apply for one-year extensions by paying additional rental penalties and committing to drilling programs. As a result, those leases surrendered will again be made available to other interested parties.

In 1986, four leases were extended.

Freehold Mineral Owner's Leasing and Revenue

Approximately 80% of the mineral rights in southwestern Manitoba are privately owned (freehold). There is keen competition among companies to negotiate new leases with freehold mineral owners in areas of current interest where leases have expired or where mineral rights are not presently leased. Freehold mineral owners receive revenue from signing bonuses, delay rental payments and oil royalties when production is obtained. Freehold royalties

may range from 12 1/2 to 20% of gross production sales value. It is estimated that gross royalties payable to freehold mineral owners in 1986 were $10.3 million (not including signing bonuses and delay rental payments for new and non-producing leases and before payment of provincial and federal taxes).

Geophysical Activity

Eight geophysical licenses were issued in 1986. The licensed programs covered approximately 277 km, making 1986 a very poor year for geophysical exploration activity in the Province compared with 1985. The estimated cost of these programs was $0.75 million.

In 1986, geophysical programs were carried out in the following areas of the province: Whitewater, Oak Lake, Flossie Lake, Niso Creek and Birtle.

MANITOBA GEOPHYSICAL ACTIVITY SUMMARY

1973-1986

YEAR	LICENSES ISSUED	# OF KILOMETRES RUN (km)	TOTAL PROGRAM COSTS $
1973	0	0	0
1974	0	0	0
1975	1	270	106,500
1976	3	112	118,302
1977	2	830	1,046,220
1978	5	1 828	3,451,370
1979	10	2 001	2,970,734
1980	10	851	1,843,438
1981	11	1 148	2,116,854
1982	19	879	1,805,512
1983	14	3 410	3,639,692
1984	23	2 731	5,547,086
1985	25	1 647	3,081,241
1986	8	277	764,186

Summary of 1986 Geophysical Programs

Geophysical License No.	Licensee	Contractor	Km Licensed
265	Dome Petroleum Ltd.	Century Geophysical Corp.	9.2
266	Venture Seismic Ltd.	Venture Seismic	119.0
267	Saskatchewan Oil & Gas Corp.	Curzon Exploration Ltd.	cancelled
268	Canadian Superior Oil Ltd.	Sonics Exploration Ltd.	24.7
269	Home Oil Company Ltd.	Century Geophysical Corp.	cancelled
270	Channel Resources Ltd.	Beaver Geophysical	8.0
271	Chevron Canada Resources Ltd.	Chevron Industries Inc.	77.0
272	Manitoba Oil and Gas Corp.	Century Geophysical Corp.	37.8
TOTAL			276.0

Drilling Activity

Drilling activity in Manitoba decreased significantly in 1986 due to the collapse in crude oil prices which began early in the year. In 1986, 116 drilling licenses were issued (63% lower than 1985) resulting in 21 different oil companies drilling 135 wells (50% lower than 1985). Ten drilling contractors using 19 drill rigs drilled 118 675 metres of hole. Of the 135 wells drilled in 1986, 91 were classified as development wells, while the remaining 44 were exploratory.

Despite the drop in drilling activity however, the success rate of wells drilled continued to be very high. Ninety percent (122 wells) of the 135 wells drilled were completed as potential oil wells. Ninety-three percent of the 91 development wells drilled and eighty-four percent of the 44 exploratory wells were completed as potential oil wells.

The Daly area continued to draw most of the drilling activity (43%). Forty-one development wells and 18 exploratory wells were drilled in the area. The Waskada area recorded 25 wells (19% of total drilling activity) while the Virden and Pierson areas accounted for 24 wells drilled.

Other areas of significant interest included the South Pierson, and south Virden Fields where new oil discoveries hold out the potential for more development.

Nineteen of the 135 wells were drilled into the Devonian Formation. Eighteen of these deeper wells were completed as potential oil wells.

One stratigraphic test hole was drilled by Canamax Resources Inc. in the Russell area. The test hole was drilled to evaluate a potential shaft location for a new potash mine.

1986 Drilling Statistics

No of Wells Drilled by Operator

	1986	1985
Newscope Resources Ltd.	16	54
Andex Oil and Gas Ltd.	15	15
Home Oil Company Ltd.	13	2
Omega Hydrocarbons Ltd.	13	58
Rideau Petroleums Ltd.	13	33
Tundra Oil and Gas	12	17
Beaverhead Resources Ltd.	10	16
Chevron Canada Resources Ltd.	9	3
Voyager Petroleums Ltd.	8	4
Canadian Roxy Petroleum Ltd.	5	7
Manitoba Oil and Gas Corp.	4	-
Resman Holdings Ltd.	3	13
Bonus Petroleum Corp.	2	3
Peregrine Petroleums Ltd.	2	2
Saskoil Resources Inc.	2	4
Trans-Canada Resources Ltd.	2	-
Antler River Resources Ltd.	1	2
Brunswick Resources Ltd.	1	-
Canamax Resources Inc.	1	-
Dome Petroleum Ltd.	1	2
ICG Resources Ltd.	1	-
Mead Petroleum and Farms Ltd.	1	6
TOTAL	135	

No of Wells Drilled by Contractor

	1986	1985
Red Arrow Drilling Ltd.	42	87
Crown Drilling Ltd.	40	102
Can Am Drilling Ltd.	21	52
Sedco Drilling Ltd.	10	4
Big Sky Drilling Ltd.	6	-
Simmons Drilling Ltd.	5	-
J. Horn Drilling	4	1
Sabre Drilling Ltd.	3	3
Spartan Drilling Ltd.	3	17
Hemsing Drilling Ltd.	1	1
Total	135	

1986 DRILLING ACTIVITY BY AREA

AREA	TWP.	RGE W2M	# of Wells Drilled	Devel. Drld.	Devel. POW	Explor. Drld.	Explor. POW	Total POW	Dry/ Abd	Other
Daly	8-10	27-29	59	41	41	18	18	59	-	-
Tilston	5 & 6	29	-	-	-	-	-	-	-	-
Waskada	1 & 2	25 & 26	25	23	22	2	2	24	1	-
Coulter	1	27	-	-	-	-	-	-	-	-
Lulu Lake	1	21	-	-	-	-	-	-	-	-
Virden	9-12	25 - 27	12	10	8	2	2	10	1	1
Whitewater	3	21	6	6	5	-	-	5	1	-
Pierson	3	28 & 29	6	4	2	2	1	3	3	-
Kirkella	12	29	-	-	-	-	-	-	-	-
Souris Hartney	6	22	-	-	-	-	-	-	-	-
Coulter	1	27	-	-	-	-	---	-	-	
S. Pierson	2	28 & 29	10	-	-	10	9	9	1	-
Other Areas			17	7	7	10*	5	12	5*	-
Total			135	91	85	44	37	122	12	1
% of Total Wells Drilled			N/A	67		33		90	9	1
Success Rate (%)			N/A	93		84		90	N/A	N/A

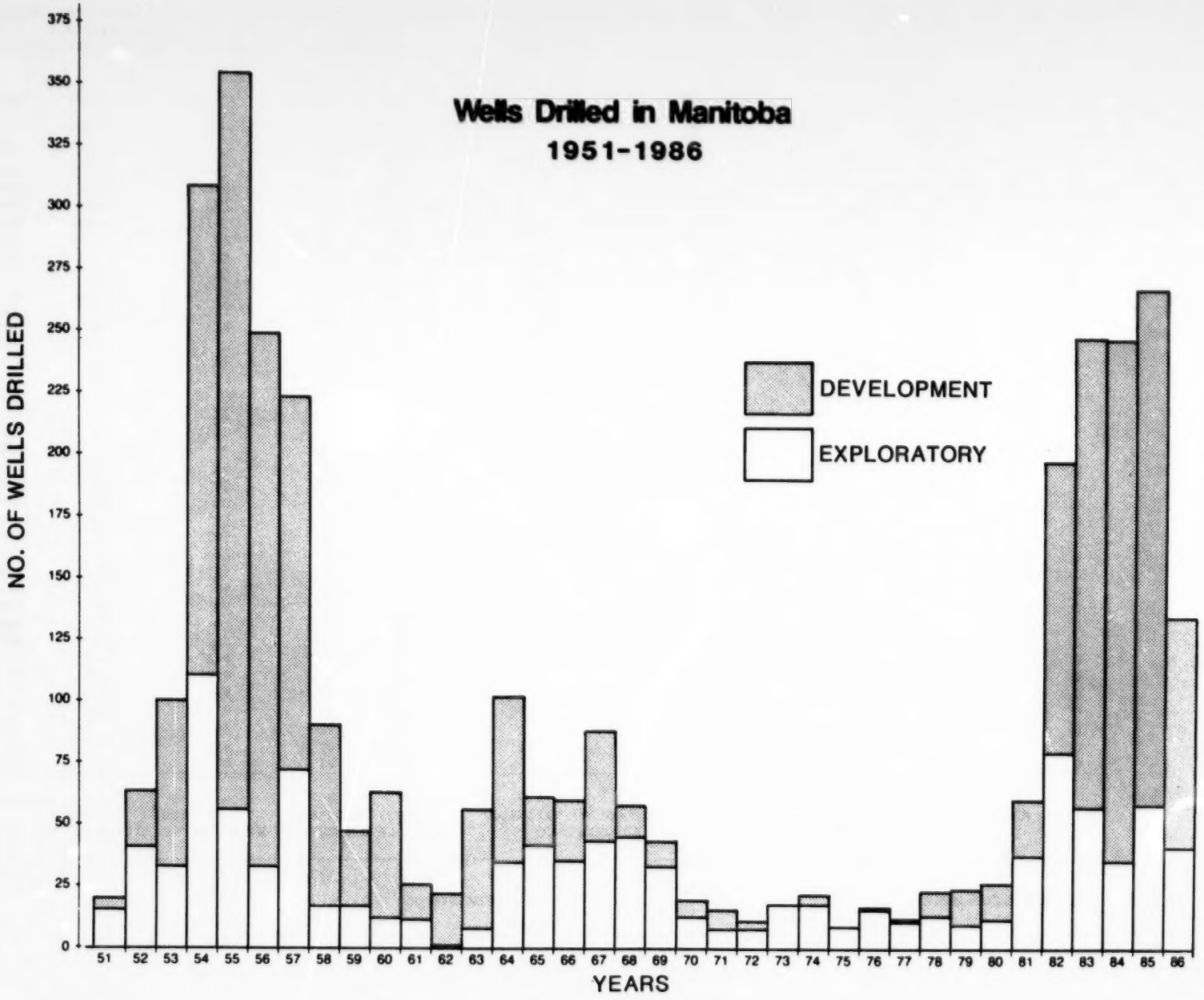
POW = Potential Oil Wells

* Includes one Potash Test Hole (PTH).

DRILLING ACTIVITY 1951-1986

YEAR	NO. OF WELLS LICENSED	NO. OF WELLS DRILLED	OIL AND GAS WELLS						OTHER WELLS DRILLED			
			CLASSIFICATION OF WELLS DRILLED		COMPLETED STATUS			METRES DRILLED	STH	PTH	GSW	Helium
			E	D	POTENTIAL OIL	ABANDONED DRY	SERVICE					
1951	20	18	14	4	6	10	2	14 956	103	0	0	0
1952	74	68	40	28	25	33	10	58 344	33	0	0	0
1953	119	102	31	71	73	29	0	76 682	9	0	0	0
1954	340	310	114	196	217	90	3	233 170	0	0	0	0
1955	378	354	57	297	279	66	9	254 774	5	0	0	0
1956	269	248	30	218	202	38	8	176 994	14	0	0	0
1957	225	224	71	153	139	85	0	155 469	2	0	0	0
1958	92	92	16	76	61	31	0	60 430	0	0	0	0
1959	48	47	16	31	30	17	0	30 792	0	2	0	0
1960	65	66	12	54	50	15	1	43 918	0	0	0	0
1961	25	28	11	17	11	16	1	17 389	0	1	0	0
1962	28	24	3	21	15	9	0	17 683	0	0	0	2
1963	59	57	9	48	39	16	2	43 451	0	0	0	0
1964	107	104	32	72	68	35	1	75 303	0	3	0	0
1965	69	65	40	25	27	38	0	50 298	2	8	0	0
1966	68	63	33	30	29	33	1	54 863	5	4	0	0
1967	90	85	42	43	44	41	0	67 068	0	0	0	0
1968	61	59	44	15	27	32	0	48 840	2	0	1	0
1969	55	46	30	16	14	29	3	34 376	38	0	0	0
1970	17	18	13	5	2	16	0	16 253	1	0	0	0
1971	18	15	6	9	2	8	5	13 026	6	0	0	0
1972	10	9	6	3	0	7	2	6 778	1	0	0	0
1973	19	17	17	0	0	17	0	14 083	0	0	0	0
1974	21	21	17	4	6	14	1	22 710	1	0	0	0
1975	5	7	7	0	2	4	1	6 717	4	0	0	0
1976	14	14	13	1	3	11	1	11 161	0	0	2	0
1977	19	11	10	1	9	2	0	9 359	0	0	2	0
1978	16	22	12	10	10	6	6	18 329	0	0	0	0
1979	27	25	9	16	16	9	0	20 537	0	0	0	0
1980	27	27	12	15	18	9	0	23 508	0	6	0	0
1981	71	62	33	29	47	15	0	61 011	0	5	0	0
1982	201	195	78	117	164	30	0	184 291	0	0	0	0
1983	284	247	60	187	223	24	0	229 304	0	5	0	0
1984	249	246	36	210	218	28	0	220 631	0	0	0	0
1985	306	261	52	209	229	29	3	228 387	7	0	0	0
1986	116	134	44	90	122	11	1	118 675	0	1	0	0
TOTAL	3,612	3,391	1,070	2,321	2,427	903	61	2 719 560	233	35	5	2

E - Exploratory; D - development; Service - water supply, waste disposal, water injection wells;
STH - Structure test hole; GSW - gas storage well; PTH - potash test hole.
*"Other Wells Drilled" are not included in the Number of Wells Licensed, Number of Wells Drilled, or Metres Drilled columns.


Wells Drilled in Manitoba
1951-1986
NO. OF WELLS DRILLED
YEARS
DEVELOPMENT
EXPLORATORY
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86

Summary of 1986 Drilling Activity (by month)

Month	Total	January	February	March	April	May	June	July	August	September	October	November	December
Well Licenses Issued	116	35	30	13	2	4	5	6	2	3	8	3	5
Rigs Operated (During Month)	N/A	13	8	7	2	2	4	2	1	4	3	3	3
Wells Drilled (Total)	135	47	35	17	2	2	5	2	3	5	6	5	6
Development	91	38	26	9	2	2	4	1	-	4	2	3	-
Exploratory Outpost	16	4	4	3	-	-	-	-	1	-	2	2	-
Exploratory NFW	21	2	4	5	-	-	1	1	2	-	2	-	4
Exploratory DPW	6	3	1	-	-	-	-	-	-	-	-	-	2
Other*	1	-	-	-	-	-	-	-	-	1	-	-	-
Metres Drilled (Total)	118 675	40 467	29 583	15 198	1 928	2 006	4 425	1 658	3 235	4 347	5 312	4 974	5 542
Development	77 979	32 531	21 809	7 373	1 928	2 006	3 575	-	-	3 447	2 496	2 814	-
Exploratory Outpost	15 930	3 441	3 621	2 893	-	-	-	810	1 065	-	1 940	2 160	-
Exploratory NFW	18 650	1 838	3 201	4 932	-	-	850	848	2 170	-	876	-	3 935
Exploratory DPW	5 216	2 657	952	-	-	-	-	-	-	-	-	-	1 607
Other *	900	-	-	-	-	-	-	-	-	900	-	-	-
New Potential Oil Wells	122	43	33	15	2	1	5	2	3	4	4	5	5
Abandoned Dry	11	4	2	1	-	1	-	-	-	-	2	-	1
Service	1	-	-	1	-	-	-	-	-	-	-	-	-
Other*	1	-	-	-	-	-	-	-	-	1	-	-	-

* Potash test hole

1986 New Exploratory Wells Cased for Production

Location	Operator	Classification
Daly Area		
11-19-10-28 WPM	Beaverhead Resources Ltd.	Outpost
7-29-10-28 WPM	Tundra Oil and Gas	Deeper Pool Wildcat
13-17-10-28 WPM	Newscope Resources Ltd.	Outpost
3-34-9-29 WPM	Voyager Petroleums Ltd.	Deeper Pool Wildcat
13-26-9-28 WPM	Home Oil company Ltd.	Deeper Pool Wildcat
3-13-9-29 WPM	Beaverhead Resources Ltd.	New Field Wildcat
12-20-10-28 WPM	Tundra Oil and Gas	Outpost
1-16-9-29 WPM	Newscope Resources Ltd.	Deeper Pool Wildcat
3-27-10-29 WPM	Beaverhead Resources Ltd.	New Field Wildcat
2-19-9-29 WPM	Newscope Resources Ltd.	Outpost
14-14-10-29 WPM	Newscope Resources Ltd.	Outpost
14-16-10-29 WPM	Newscope Resources Ltd.	Outpost
12-5-9-29 WPM	Andex Oil and Gas Ltd.	New Field Wildcat
16-17-10-29 WPM	Newscope Resources Ltd.	Outpost
2-25-10-29 WPM	Peregrine Petroleums Ltd.	New Field Wildcat
9-25-10-29 WPM	Peregrine Petroleums Ltd.	New Field Wildcat
15-11-10-29 WPM	Manitoba Oil and Gas Corp.	Deeper Pool Wildcat
14-24-9-29 WPM	Beaverhead Resources Ltd.	Outpost
Waskada Area		
5-4-1-25 WPM	Omega Hydrocarbons Ltd.	Outpost
10-4-1-25 WPM	Omega Hydrocarbons Ltd.	Outpost
Virden Area		
10-8-9-25 WPM	Chevron Canada Resources Ltd.	New Field Wildcat
6-36-9-26 WPM	Manitoba Oil and Gas Corp.	Deeper Pool Wildcat
Pierson Area		
6-17-3-29 WPM	Rideau Petroleums Ltd.	Outpost

South Pierson Area		
16-5-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
4-15-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
4-21-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
6-7-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
16-10-2-29 WPM	Home Oil Company Ltd.	Outpost
10-21-2-29 WPM	Home Oil Company Ltd.	Outpost
6-4-2-29 WPM	Home Oil Company Ltd.	Outpost
6-19-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
8-9-2-29 WPM	Home Oil Company Ltd.	New Field Wildcat
Other Areas		
6-15-8-28 WPM	Voyager Petroleums Ltd.	New Field Wildcat
11-22-8-28 WPM	Voyager Petroleums Ltd.	New Field Wildcat
15-17-8-28 WPM	Voyager Petroleums Ltd.	New Field Wildcat
6-33-8-28 WPM	Andex Oil and Gas Ltd.	New Field Wildcat
8-11-4-22 WPM	Tundra Oil and Gas	New Field Wildcat
7-34-8-28 WPM	Manitoba Oil and Gas Corp.	Outpost

EXPLORATORY* OIL AND GAS WELLS DRILLED IN MANTIOBA
1974 - 1986

Year	(Geological Period of Formation Drilled Into) Cretaceous	Jurassic	Mississippian	Devonian	Silurian	Ordovician	Cambrian	Precambrian	Total
1974	1	-	5	-	-	-	-	12	18
1975	1	-	4	1	-	4	-	1	11
1976	-	-	5	7	-	-	-	-	12
1977	-	-	10	-	-	-	-	-	10
1978	-	-	9	1	-	1	-	1	12
1979	-	-	6	1	-	-	-	2	9
1980	-	-	8	1	1	-	-	1	11
1981	-	-	21	6	-	-	-	5	32
1982	-	-	72	5	-	-	-	1	78
1983	-	1	48	9	1	-	-	1	60
1984	1	-	32	2	-	-	-	1	36
1985	-	-	49	2	-	-	-	1	52
1986	-	-	30	13	-	-	-	-	43
TOTAL	3	1	299	48	2	5	-	26	384

* Exploratory - includes outpost, exploratory, new field wildcat and deeper pool wildcat classifications.

DETAILED DRILLING STATISTICS
1981-1986

Exploratory

Year	New Field Wildcat Drld	New Field Wildcat Success(%)	Outpost Drld	Outpost Success(%)	Deeper Pool Test Drld	Deeper Pool Test Success(%)	Sub Total
1981	23	35%	6	100%	4	100%	33
1982	43	44%	35	94%	0	N/A	78
1983	29	59%	27	93%	4	100%	60
1984	19	37%	16	50%	1	100%	36
1985	29	60%	22	82%	1	100%	52
1986	21	86%	16	94%	6	100%	43

	Development Drld	Development Success(%)	Other Service	Other STH/PTH	Total
1981	29	100%	0	5	67
1982	117	95%	0	0	195
1983	187	95%	0	5	252
1984	210	95%	0	0	246
1985	209	92%	3	7	268
1986	90	95%	1	1	135

MANITOBA

NON-ABANDONED WELLS (Dec. 1986)

Field	During December									(Dec.31/86) Drilled but Not Activated***	(Dec.31/86) Total Non-Abandoned Wells***
	Active Oil Producers*	Inactive Oil Producers*	Active WSW	Inactive WSW	Active GIW	Active SWD**	Inactive SWD**	Active WIW	Inactive WIW		
Daly	304	53	-	2	-	14	1	31	4	13	422
Tilston	17	5	-	-	-	1	1	-	-	-	24
Waskada	344	81	3	1	1	3	-	54	5	9	497
Lulu Lake	7	1	-	-	-	1	-	-	-	1	10
Virden	542	42	-	-	-	23	4	117	-	7	735
Whitewater	22	6	-	-	-	1	1	-	1	-	31
Pierson	44	9	-	-	-	4	1	-	-	2	60
Kirkella	28	6	-	-	-	4	-	-	-	-	38
Souris-Hartney	7	2	-	-	-	1	-	-	-	-	10
Coulter	1	6	-	-	-	1	1	-	-	1	10
South Pierson	8	2	-	-	-	1	-	-	-	-	11
Other Areas	14	10	-	-	-	2	-	-	-	16	42
Confidential Wells	29	2	-	-	-	-	-	-	-	****	31
	1 367	225	3	3	1	56	9	202	10	49	1 921

1986 Designated Field Boundaries

Active Wells (Dec. 1986) = 1 629

* Dual wells not included.

** Dual wells included.

*** Excludes abandonments during December

**** Included.

Production and markets

Manitoba's annual oil production increased for the fifth consecutive year.

Annual oil production in Manitoba reached 823 322 m^3 (5.2 million barrels) in 1986, representing a slight (.5%) increase over 1985.

During December 1986 the Province had 1 367 oil wells producing.

Production from the Daly area continued to increase. In 1985 the Daly area produced 129 422 m^3 while in 1986 production increased to 167 050 m^3 (29% increase). The reason for the increase is due mainly to the very high drilling success rate in the area.

In 1986, 452 800 m^3 (55% of total production) was classified as "New" oil or oil produced from wells drilled since 1973.

Of the total amount of Manitoba oil purchased by refiners in 1986, approximately 31% was refined in Ontario, 18% was utilized by refiners in Quebec and 51% went to refineries in the United States.

1986 Annual Production

By Operator	Vol (m^3)
Chevron Canada Resources Limited	322 824.2
Omega Hydrocarbons Ltd.	196 197.2
Newscope Resources Ltd.	41 555.9
Rideau Petroleums Ltd.	28 454.8
Beaverhead Resources Ltd.	27 714.1
Tundra Oil and Gas	27 605.3
Andex oil co. Ltd.	27 574.1
Geocrude Energy Inc.	20 657.1
Canadian Roxy Petroleum Ltd.	20 011.8
Resman Holdings Ltd.	13 114.3
Samedan Oil of Canada Inc.	10 329.2
Mead Petroleum & Farms Ltd.	10 267.7
Resman Oil and Gas ltd.	7 687.7
Home Oil Company Limited	6 588.2
ICG Resources Limited	5 841.0
Voyager Energy Company	5 615.7
Canada Northwest Energy Limited	5 240.6
Trans Canada Resources Ltd.	5 001.8
Lyleton Corporation	4 341.3
Murphy Oil Company Ltd.	4 325.7
Can-Tex Drilling & Exploration Ltd.	3 537.0
Saskoil Resources Inc.	3 438.9
Triton Petroleum Limited	3 058.0
Canadian Reserve Oil & Gas Ltd.	2 739.4
Koch Exploration Canada Inc.	2 415.4
Suncor Inc.	2 325.3
Texaco Exploration Canada Ltd.	1 823.6
Peregrine Petroleums Ltd.	1 346.8
Wildmount Resources Ltd.	1 264.7
John Deroy Gerrand Oil Syndicate	1 070.1
Other	9 355.0
TOTAL	823 321.9

By Field	Vol (m^3)
Virden	320 496.0
Waskada	248 705.4
Daly	167 050.1
Pierson	20 957.5
Whitewater	19 895.3
Kirkella	8 558.6
Tilston	6 947.3
South Pierson	6 498.1
Lulu Lake	3 995.4
Souris Hartney	2 570.7
Coulter	750.5
Other Areas	4 375.6
Conf. Wells	12 521.4
	823 321.9

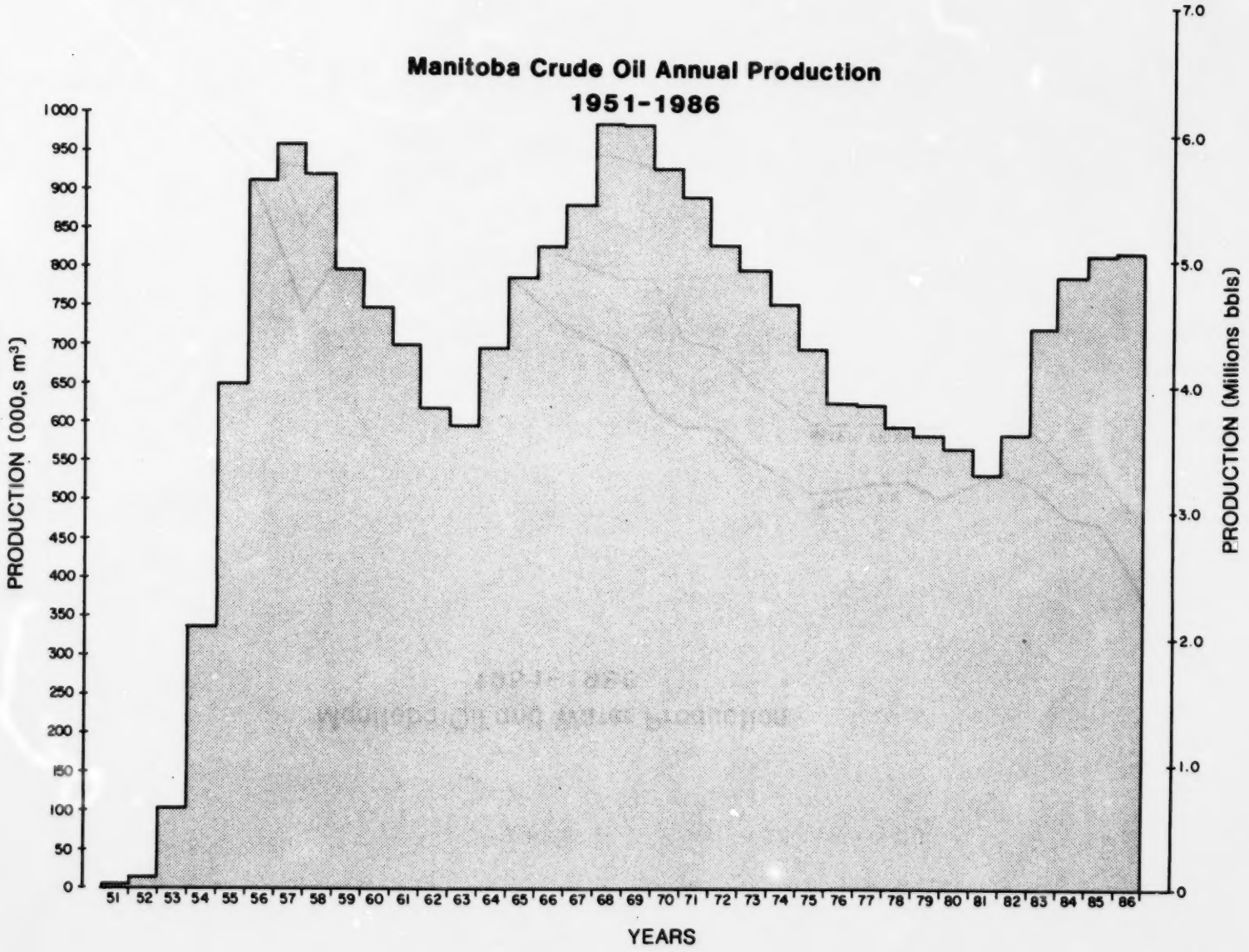
1986 Monthly Crude Oil Production by Field
(m^3)

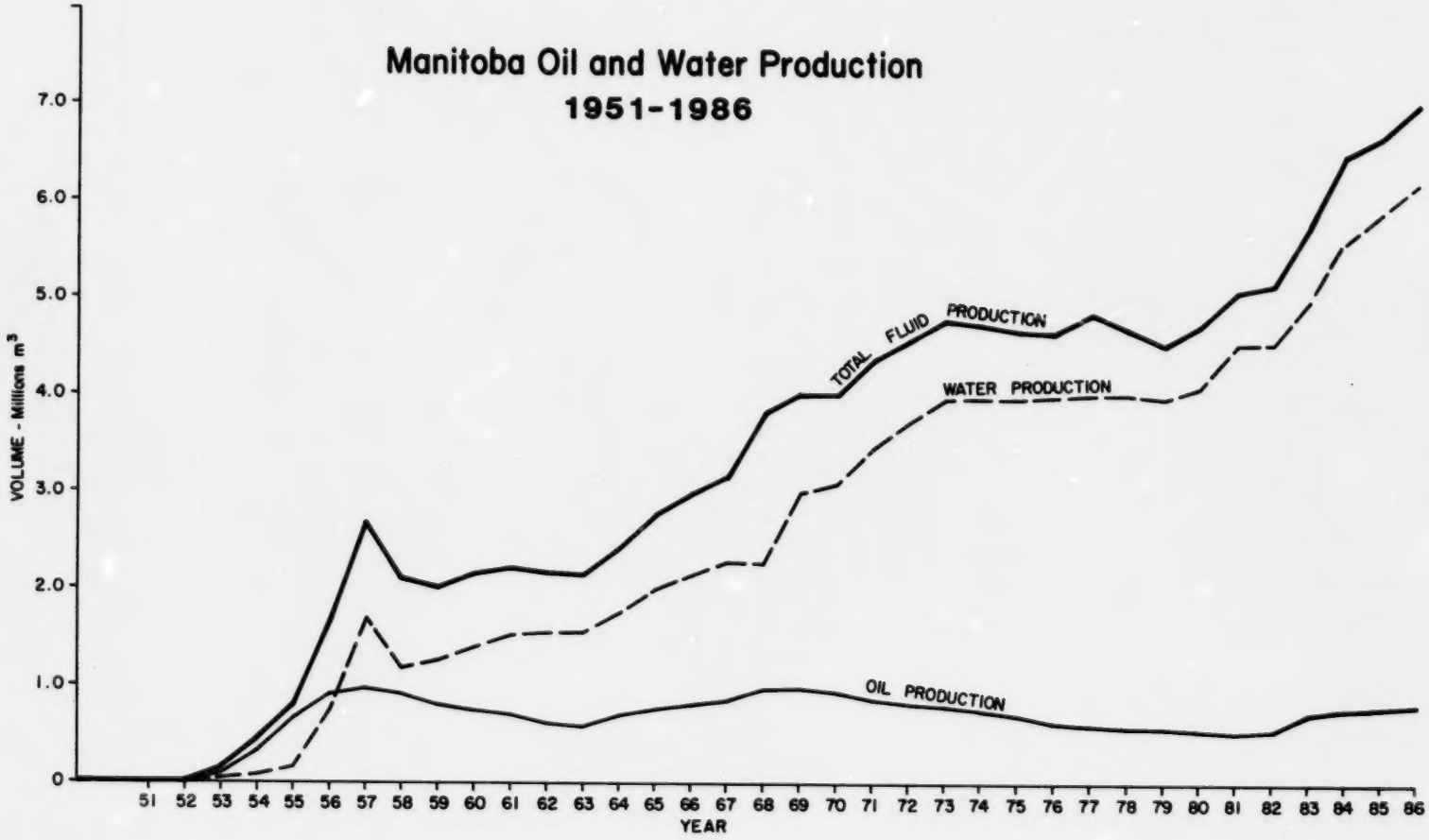
Field	January	February	March	April	May	June	July	August	September	October	November	December	Total
Daly	14 562.9	14 429.2	13 341.4	12 317.6	12 789.4	13 963.0	14 619.9	15 290.2	14 465.9	14 488.4	13 524.0	13 258.2	167 050.1
Tilston	597.5	547.3	582.8	558.1	523.7	511.1	584.4	597.4	550.6	572.7	634.3	687.4	6 947.3
Waskada	24 033.4	22 095.9	21 468.1	19 073.6	19 500.4	19 500.6	20 460.3	21 618.1	21 021.3	20 900.0	19 352.2	19 681.5	248 705.4
Lulu Lake	527.9	443.1	415.0	88.0	-	288.4	386.4	472.6	394.9	265.9	375.2	338.0	3 995.4
Virden	26 901.2	25 481.2	24 331.6	26 411.5	27 253.3	26 889.4	27 792.7	27 723.5	27 267.9	26 537.9	26 685.5	27 220.3	320 496.0
Whitewater	1 382.2	1 706.1	1 438.9	1 460.0	1 712.7	1 772.8	1 863.0	1 735.4	1 727.8	1 664.5	1 580.5	1 851.4	19 895.3
Pierson	1 904.2	1 793.8	1 876.9	1 828.1	1 771.9	1 763.8	1 675.7	1 553.7	1 605.4	1 689.2	1 727.0	1 767.8	20 957.5
Kirkella	765.5	580.0	670.7	602.7	640.5	694.6	802.5	710.2	731.9	802.7	758.9	798.4	8 558.1
Souris Hartney	218.9	188.2	225.7	220.3	217.9	221.6	207.2	217.2	223.4	197.0	219.9	213.4	2 570.7
Coulter	39.6	25.6	41.3	146.5	73.8	52.3	71.8	93.7	67.2	42.6	50.7	45.4	750.5
South Pierson	598.4	578.2	546.3	559.9	661.7	606.5	540.3	543.5	408.0	464.5	470.2	520.6	6 498.1
Other Areas	485.0	436.8	278.5	175.9	378.5	390.6	378.1	424.2	363.9	360.3	401.6	302.2	4 375.6
Conf. Wells	-	155.0	694.5	641.3	1 249.4	1 639.0	1 406.5	1 300.6	1 319.3	1 389.7	1 374.9	1 351.2	12 521.4
Undesignated Pools	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	72 016.7	68 460.4	65 911.7	64 083.5	66 773.2	68 293.7	70 788.8	72 280.3	70 147.5	69 375.4	67 149.2	68 041.5	823 321.9

MANITOBA OIL AND WATER PRODUCTION

1951-1986

YEAR	WELLS CAPABLE OF PRODUCING (DECEMBER)	WELLS PRODUCING (DECEMBER)	OIL PRODUCTION (m^3)	WATER PRODUCTION (m^3)	TOTAL FLUID PRODUCTION (m^3)	AVG. WATER CUT (%)	AVG. OIL PRODUCTION (m^3/day)
1951	5	5	1 854	152	2 006	7.6	5.08
1952	39	32	17 022	4 068	23 096	17.6	46.64
1953	105	93	104 193	50 614	154 807	32.7	285.46
1954	284	269	341 410	112 226	453 636	24.7	935.37
1955	554	486	658 802	160 092	818 894	19.5	1 804.94
1956	736	647	919 539	754 908	1 674 447	45.1	2 519.28
1957	846	739	967 721	1 709 792	2 677 513	63.9	2 651.29
1958	877	736	926 322	1 183 122	2 109 444	56.1	2 537.87
1959	875	730	803 461	1 273 632	2 077 093	61.3	2 201.26
1960	893	755	757 054	1 400 880	2 157 934	64.9	2 074.12
1961	874	729	711 969	1 510 627	2 222 596	68.0	1 950.60
1962	852	730	623 989	1 549 430	2 173 419	71.3	1 709.56
1963	839	683	599 212	1 550 287	2 149 499	72.1	1 641.68
1964	892	745	701 920	1 752 708	2 454 628	71.4	1 923.07
1965	889	748	786 050	2 004 068	2 790 118	71.8	2 153.56
1966	905	737	831 248	2 162 719	2 993 967	72.2	2 277.39
1967	911	752	887 572	2 288 271	3 175 843	72.1	2 431.70
1968	926	774	986 024	2 839 697	3 825 721	74.2	2 701.44
1969	923	754	985 981	3 091 398	4 077 379	75.8	2 701.32
1970	904	730	939 175	3 105 414	4 044 589	76.8	2 573.08
1971	900	695	890 622	3 463 885	4 354 507	79.5	2 440.06
1972	891	745	835 380	3 744 738	4 580 118	81.8	2 288.71
1973	882	687	807 882	3 983 740	4 791 622	83.1	2 213.38
1974	871	714	754 667	3 992 698	4 747 365	84.1	2 067.58
1975	831	686	701 459	3 975 389	4 676 848	85.0	1 921.81
1976	821	688	633 322	4 020 078	4 653 400	86.4	1 735.13
1977	804	701	630 466	4 226 135	4 856 601	87.0	1 727.30
1978	808	703	598 354	4 073 299	4 671 653	87.2	1 639.33
1979	811	706	583 377	3 946 337	4 529 714	87.1	1 598.29
1980	823	720	563 482	4 171 099	4 734 581	88.1	1 543.79
1981	853	748	542 695	4 565 210	5 107 905	89.4	1 486.84
1982	1002	896	582 283	4 582 081	5 164 364	88.7	1 595.13
1983	1160	1041	736 934	5 079 646	5 816 580	87.3	2 022.74
1984	1350	1209	793 286	5 575 632	6 368 918	87.5	2 173.39
1985	1505	1366	820 729	5 685 409	6 686 138	87.7	2 248.57
1986	1592	1367	823 322	6 215 248	7 038 570	88.3	2 255.68
TOTAL	N/A	N/A	24 848 778	99 984 729	124 833 507	N/A	N/A


Manitoba Crude Oil Annual Production
1951-1986
PRODUCTION (000,s m³)
PRODUCTION (Millions bbls)
YEARS
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86


Manitoba Oil and Water Production
1951-1986
VOLUME - Millions m³
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
TOTAL FLUID PRODUCTION
WATER PRODUCTION
OIL PRODUCTION
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
YEAR

Oil Prices

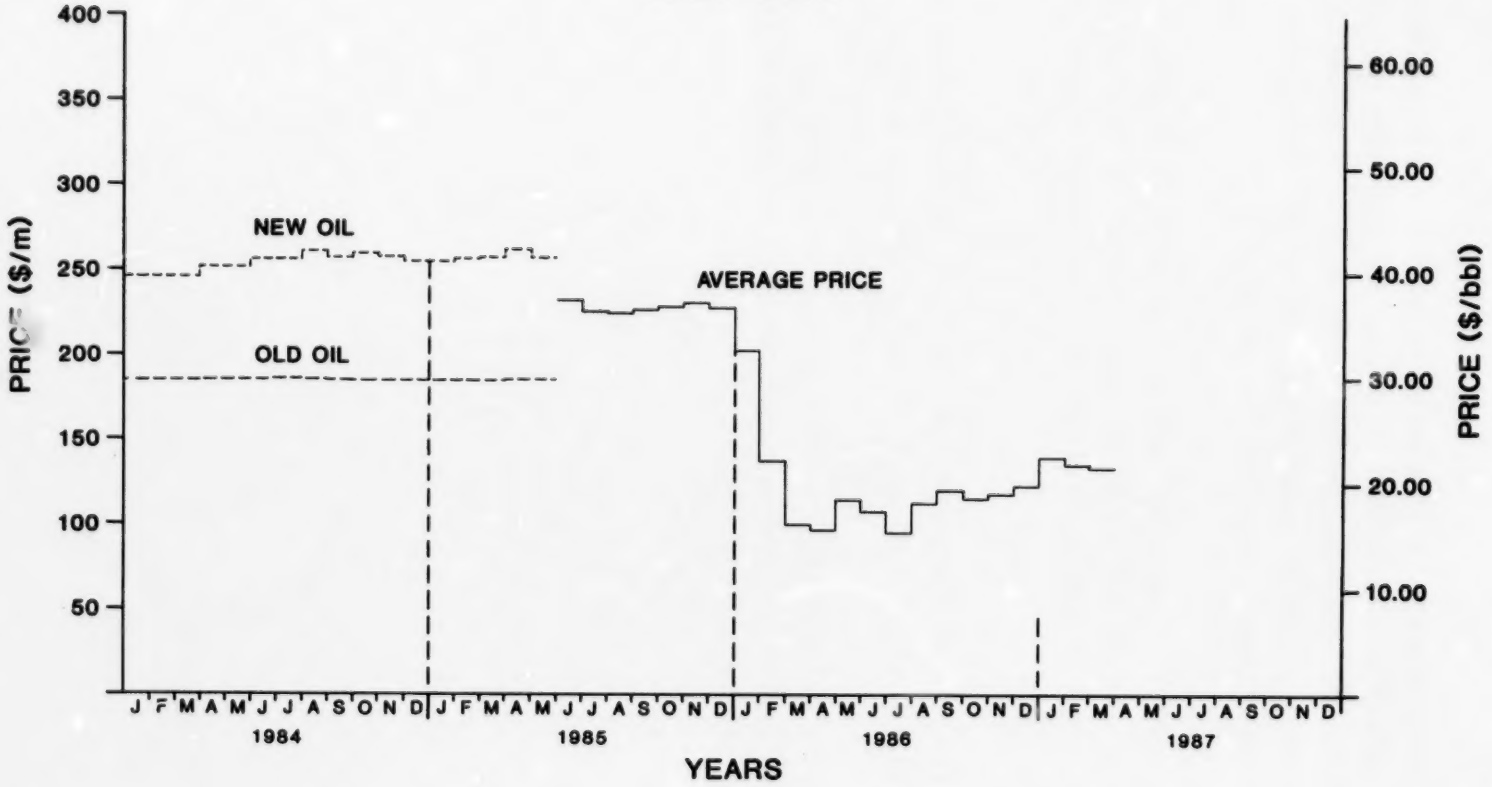
Since December, 1985 a world oil glut has resulted in a collapse of crude oil prices which has rippled through all economies that produce or utilize crude oil supplies. Naturally, the higher cost producing countries have seen their petroleum industries virtually shut down as prices have been driven to their lowest level since the 1970's.

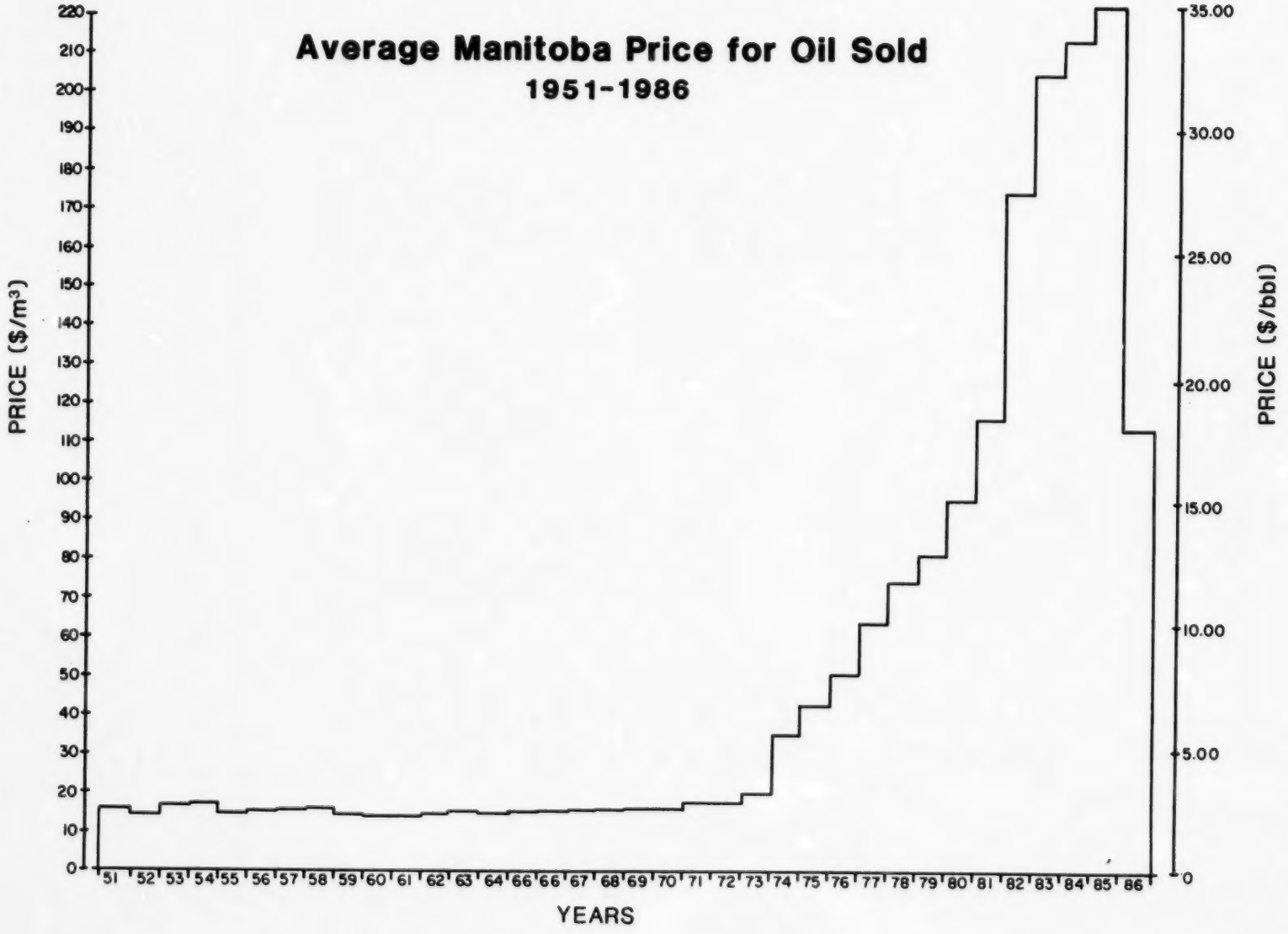
In early January 1986, the average price of crude oil produced in Manitoba was $\$223.40/m^3$ ($35.50 Cdn. per barrel). Average prices then tumbled to a yearly low of $\$88.30/m^3$ ($14.03 Cdn. per barrel) on July 10, 1986.

By December 31st, 1986 the average price of crude oil produced in Manitoba had rebounded to $\$132.47/m^3$ ($21.05 Cdn. per barrel).

In 1986, Manitoba's overall average crude oil price slipped 47% to ($120.64/m^3$ ($19.17 Cdn. per barrel) compared with 1985's average of $\$225.79/m^3$ ($35.88 Cdn. per barrel).

MANITOBA CRUDE OIL PRICES
1984-1987




Average Manitoba Price for Oil Sold
1951-1986
PRICE ($/m³)
PRICE ($/bbl)
YEARS
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0
51 52 53 54 55 56 57 58 59 60 61 62 63 64 66 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86

DISPOSITION OF MANITOBA PRODUCED CRUDE OIL 1951-1986 (m^3)*

YEAR	MANITOBA**	ONTARIO	QUEBEC	USA	TOTAL
1951-1959		DATA NOT AVAILABLE			
1960	371 732	321 440	-	79 611	772 783
1961	148 029	573 637	-	-	721 666
1962	74 471	558 567	-	6 420	639 458
1963	94 452	533 598	-	-	628 050
1964	164 326	539 152	-	-	703 478
1965	82 651	701 955	-	-	784 606
1966	22 572	564 797	-	263 011	850 380
1967	27 417	416 097	-	476 577	920 091
1968	30 180	455 207	-	524 570	1 009 951
1969	31 323	620 216	-	351 918	1 003 457
1970	30 011	408 452	-	515 769	954 232
1971	24 539	388 389	-	490 412	903 340
1972	24 270	378 571	-	465 552	868 393
1973	273 687	95 745	-	455 093	824 525
1974	449 887	60 934	-	252 605	763 426
1975	383 383	312 397	-	12 596	708 376
1976	82 747	535 162	-	34 356	652 265
1977	21 877	609 298	-	41 309	672 484
1978	53 162	552 889	-	40 450	646 501
1979	33 258	549 524	-	48 261	631 043
1980	92 921	444 319	19 026	55 378	611 644
1981	180 402	189 659	150 177	57 702	577 940
1982	-	331 564	371 331	57 465	760 360
1983	81 887	258 611	380 911	71 544	792 853
1984	-	550 489	198 168	90 874	839 531
1985	-	245 364	483 508	211 331	940 203
1986	-	300 446	175 962	499 997	976 405
TOTAL	2 778 460	11 496 379	1 779 083	5 102 801	25 897 771

* Includes some oil produced in Saskatchewan and trucked into Manitoba.

** Manitoba's last refinery (Shell St. Boniface) closed in 1983.

Value of Production

The total value of oil production during 1986 was $95.3 million, down 47% over 1985. The main reason for the lower value was the collapse of crude oil prices.

Provincial Revenue from Oil Production

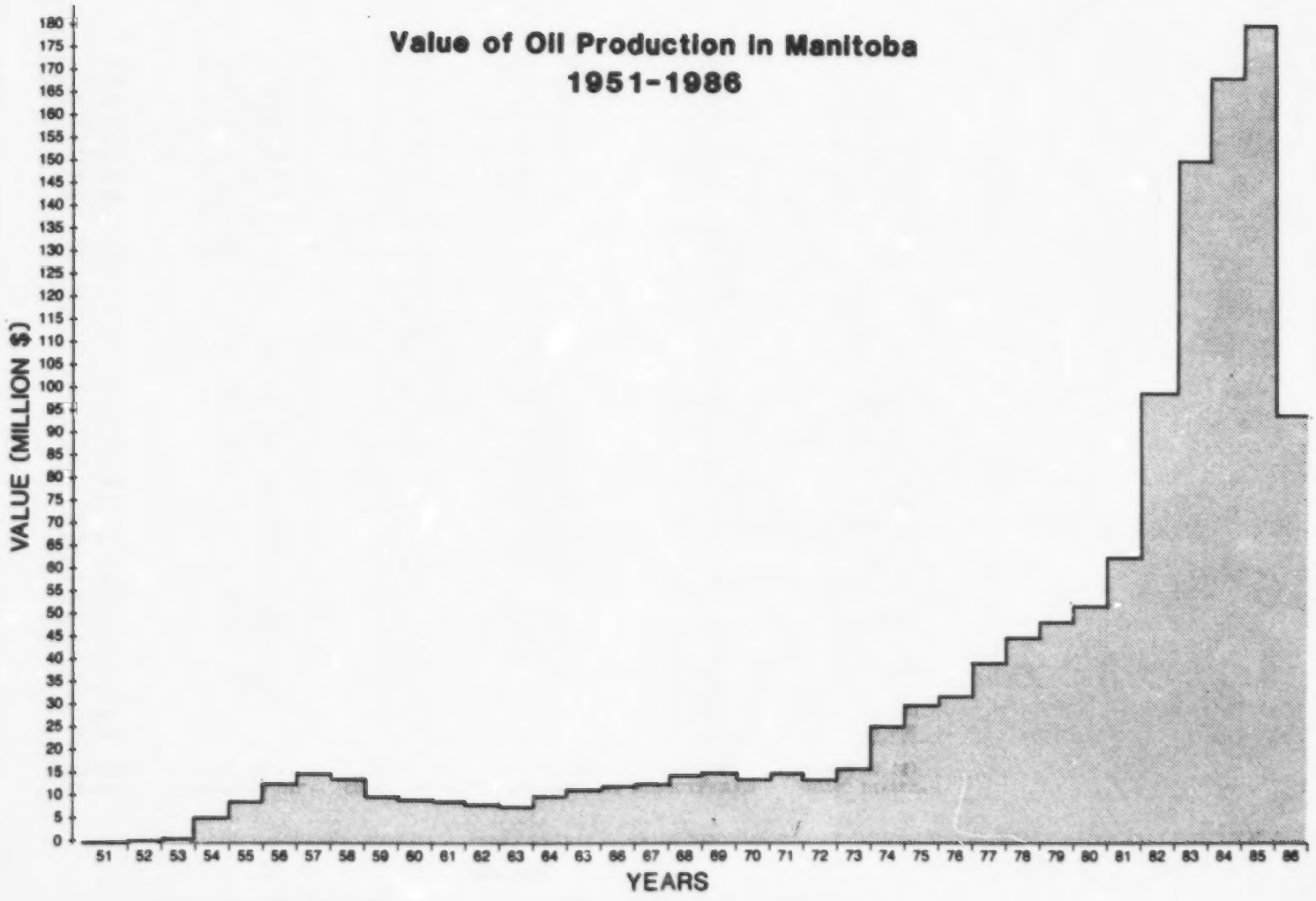
Since provincial revenue from crude oil production is either directly or indirectly affected by oil price, there was an overall decrease in direct Provincial government revenues. The Manitoba government collected approximately $12.5 million in revenues ($2.6 million in Crown oil royalties, $8.7 million in freehold oil taxes, and $1.2 million in Crown lease sale bonuses, rentals and fees, resulting in a 48% decrease over 1985). These figures do not include provincial revenues in the form of corporate capital tax, sales tax, municipal tax and corporate and individual income tax.

MANITOBA CRUDE OIL PRODUCTION AND SALES VALUE

1951-86

YEAR	ANNUAL PRODUCTION (m^3)	CUMULATIVE PRODUCTION DEC. 31 (m^3)	VALUE OF SALES (000's $)	CUMULATIVE VALUE OF SALES (DEC. 31) (000's $)	AVERAGE WELLHEAD PRICE* $/$m^3$	$/bbl
1951	1 854	1 854	26	26	15.58	2.48
1952	17 022	18 876	229	255	13.77	2.24
1953	104 193	123 069	1,715	1,970	16.51	2.62
1954	341 410	464 479	5,620	7,590	16.46	2.62
1955	658 802	1 123 281	9,517	17,107	14.56	2.31
1956	919 539	2 042 820	13,417	30,524	14.61	2.32
1957	967 721	3 010 541	15,231	45,755	15.81	2.51
1958	926 322	3 936 863	14,265	60,020	15.40	2.45
1959	803 461	4 740 324	11,615	71,635	14.46	2.30
1960	757 054	5 497 378	10,690	82,325	14.16	2.25
1961	711 969	6 209 347	10,133	92,458	14.27	2.27
1962	623 989	6 833 336	9,500	101,958	15.12	2.49
1963	599 212	7 432 548	9,183	111,141	15.33	2.44
1964	701 920	8 134 468	10,694	121,835	15.31	2.43
1965	786 050	8 920 518	12,270	134,105	15.59	2.48
1966	831 248	9 751 766	13,087	147,192	15.73	2.50
1967	887 572	10 639 338	13,974	161,166	15.77	2.51
1968	986 024	11 625 362	15,561	176,727	15.79	2.51
1969	985 981	12 611 343	15,615	192,342	15.82	2.51
1970	939 175	13 550 518	14,858	207,200	15.80	2.51
1971	890 622	14 441 140	15,445	222,645	17.31	2.75
1972	835 380	15 276 520	14,586	237,231	17.46	2.77
1973	807 882	16 084 402	17,155	254,386	21.23	3.37
1974	754 667	16 839 069	27,182	281,568	36.00	5.72
1975	701 459	17 540 528	31,453	313,021	44.81	7.12
1976	633 322	18 173 850	33,533	346,554	52.99	8.42
1977	630 466	18 804 316	40,457	387,011	64.12	10.19
1978	598 354	19 402 670	45,953	432,964	76.77	12.20
1979	583 377	19 986 047	48,403	481,367	82.97	13.19
1980	563 482	20 549 529	54,958	536,325	97.57	15.51
1981	542 695	21 092 224	64,055	600,380	118.03	18.82
1982	582 283	21 674 507	100,537	700,917	173.57	27.58
1983	736 934	22 411 441	152,350	853,267	206.64	32.84
1984	793 286	23 204 727	169,296	1,022,563	214.04	34.02
1985	820 729	24 025 456	180,049	1,202,612	220.21	35.00
1986	823 322	24 848 778	95,337	1,297,949	114.66	18.22

* Average Wellhead Price = Value of Sales ÷ Volume Sold.

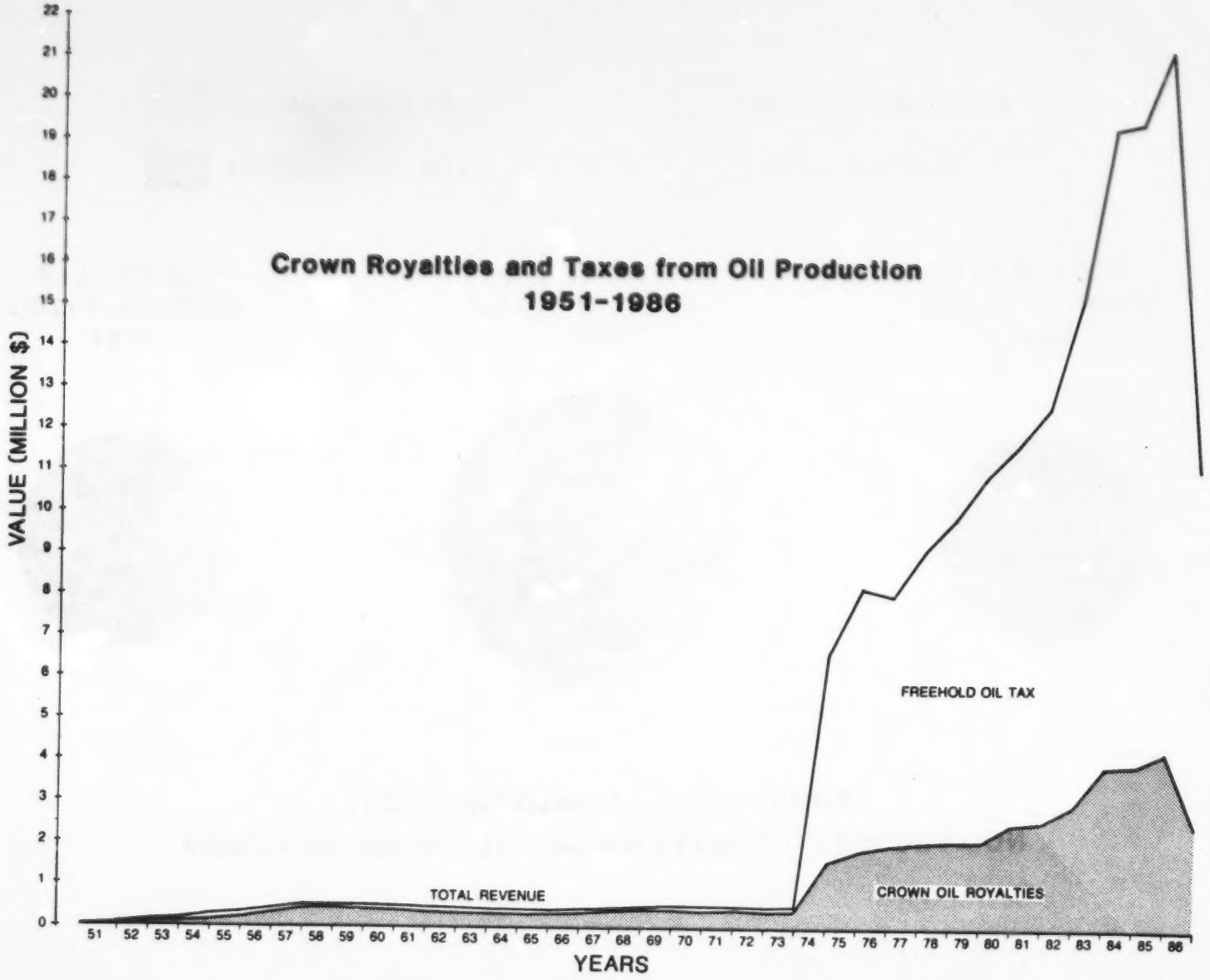

Value of Oil Production in Manitoba
1951-1986
VALUE (MILLION $)
YEARS
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
51 52 53 54 55 56 57 58 59 60 61 62 63 64 63 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86

DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA*

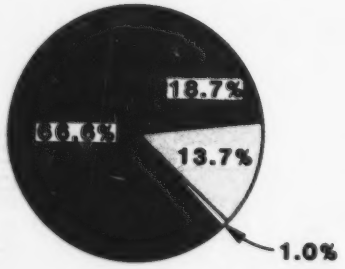
1951-1986

YEAR	CROWN ROYALTIES	FREEHOLD OIL TAX ($)**	CROWN LEASE*** RENTAL ($)	CROWN LAND**** SALES ($)	MISCELLANEOUS FEES ($)	TOTAL DIRECT* REVENUES ($)
1951	2,000	-	4,000	-	5,000	11,000
1952	7,000	-	7,000	-	9,000	23,000
1953	50,000	46,000	6,000	-	8,000	110,000
1954	156,000	64,000	18,000	88,000	24,000	350,000
1955	230,000	92,000	69,000	627,000	10,000	1,028,000
1956	318,000	83,000	512,000	156,000	18,000	1,087,000
1957	382,000	126,000	421,000	110,000	-	1,039,000
1958	356,000	137,000	293,000	-	31,000	817,000
1959	344,000	165,000	201,000	14,000	2,000	726,000
1960	313,000	130,000	98,000	4,000	2,000	547,000
1961	306,000	105,000	93,000	135,000	5,000	644,000
1962	298,000	96,000	90,000	26,000	10,000	520,000
1963	276,000	91,000	47,000	40,000	3,000	457,000
1964	307,000	86,000	35,000	122,000	23,000	573,000
1965	344,000	84,000	62,000	102,000	3,000	595,000
1966	353,000	96,000	60,000	94,000	3,000	606,000
1967	370,000	111,000	56,000	83,000	10,000	630,000
1968	411,000	116,000	39,000	60,000	14,000	640,000
1969	405,000	128,000	31,000	84,000	4,000	652,000
1970	377,000	143,000	28,000	15,000	1,000	564,000
1971	373,000	143,000	21,000	34,000	2,000	573,000
1972	348,000	138,000	16,000	-	1,000	503,000
1973	404,000	144,000	15,000	-	2,000	565,000
1974	1,599,000	5,216,000	15,000	-	4,000	6,834,000
1975	1,823,000	6,498,000	12,000	-	1,000	8,334,000
1976	2,024,000	6,128,000	11,000	-	11,000	8,174,000
1977	2,263,000	7,012,000	10,000	-	3,000	9,288,000
1978	2,281,000	8,018,000	10,000	-	6,000	10,315,000
1979	2,280,000	8,769,000	44,000	944,000	12,000	12,049,000
1980	2,575,000	9,159,000	128,000	1,884,000	11,000	13,757,000
1981	2,715,000	10,005,000	186,000	1,692,000	12,000	14,610,000
1982	3,176,000	12,194,000	231,000	1,058,000	28,000	16,687,000
1983	4,135,000	14,825,000	270,000	1,076,000	59,000	20,365,000
1984	3,972,000	15,622,000	275,000	2,187,000	68,000	22,124,000
1985	4,413,000	15,133,000	307,000	4,224,000	89,000	24,166,000
1986	2,570,000	(8,650,000)	277,000	917,000	53,000	12,467,000
TOTAL	42,555,000	129,553,000	3,999,000	15,776,000	547,000	192,430,000

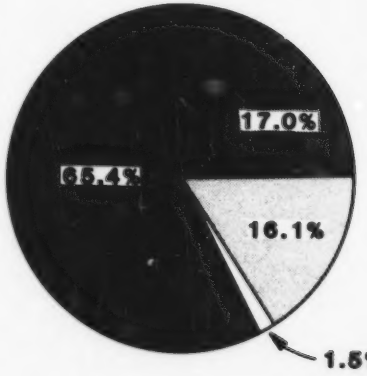
* Does not include corporate capital tax, sales tax, corporate and individual income tax or oil export tax.
** Administered under The Oil and Natural Gas Tax Act, Cap.035.
*** Includes only Rental Fees.
**** Includes Bonus and Application Fees.
Estimate ( )


Crown Royalties and Taxes from Oil Production
1951-1986
VALUE (MILLION $)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
TOTAL REVENUE
FREEHOLD OIL TAX
CROWN OIL ROYALTIES
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
YEARS

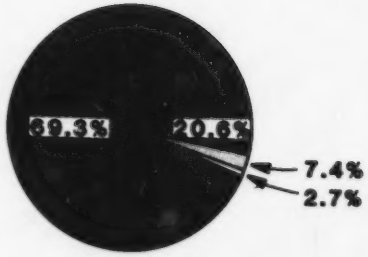
DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA



1980
TOTAL REVENUE
$13,750,000



1985
TOTAL REVENUE
$26,033,000



1986
TOTAL REVENUE
$12,467,000

FREEHOLD OIL TAXES

CROWN ROYALTIES

LEASE BONUSES

RENTALS AND MISC. FEES

Municipal Tax Assessments

Oil producers in Manitoba pay a municipal tax on wells and associated production facilities, including: oil wells, batteries, salt water disposal wells, salt water disposal plants, water injection wells, suspended wells and pipelines.

The municipal tax assessment on these facilities for the calendar year 1986 was approximately $9.02 million dollars, an increase of 5% over the previous year.

Actual revenue from these assessments should amount to approximately $2.3 million for affected municipalities.

Surface Owners

Companies wishing to explore or develop oil properties in Manitoba must negotiate a surface lease with the individual landowner. In return for this right-of-entry, the landowner receives a negotiated cash settlement which includes a first-year bonus payment and a subsequent annual rental fee for the duration of the lease.

Where the landowner is renting his land to another party, the oil company seeking right-of-entry must obtain the consent of both the landowner and the occupant.

After a lease has been signed, the landowner and occupant then determine what each will receive as his share of the compensation paid by the oil company.

In 1986, an estimated $4.0 million was paid by oil companies to landowners in the form of first-year bonuses ($1.0 million) and annual rental fees ($3.0 million).

Following proclamation of The Surface Rights Act on August 9, 1984, disputes relating to right-of-entry are referred to the Surface Rights Board. The Board's principal function is to arbitrate disputes between the petroleum industry and landowners regarding use of land for exploration, development and related operations and to determine what compensation should be paid to the landowner.

The Minister of Municipal Affairs is responsible for the administration of The Surface Rights Act. The Board's office is located in Winnipeg.

Waskada Gas Plant

During 1986 the Waskada gas plant, now in its third year of production, operated at approximately 33% of capacity (capacity = 85 000 m^3/day). The plant, which was built to extract propane, butane and condensate produced approximately 10 m^3 of propane, 3 m^3 of butane and 2 m^3 of condensate daily.

In 1986, 5 488.4 m^3 of propane, butane and condensate were produced valued at $502,622. Compared with 1985, volumes in 1986 decreased by 25%. Of the total 5 488.4 m^3 produced, propane accounted for 65%, butane 19% and condensate 16%.

As of December 31, 1986, the majority of the dry processed gas from the plant was being injected for storage back into underground formations.

Manitoba Drilling Incentive Program

The "Manitoba Drilling Incentive Program" provided for reduced Crown oil royalty and freehold oil tax rates on oil produced from new wells. Wells drilled between January 1, 1979 and January 1, 1987, and producing from Crown mineral rights qualified for a special reduced royalty incentive rate which was 35% of the corresponding base royalty rate charged on "old oil".

New wells producing from freehold mineral rights were eligible for a corresponding incentive freehold oil tax rate under The Oil and Natural Gas Tax Act.

The reduced royalty and tax rates applied to production from a new oil well during its respective "incentive period".

The incentive period earned for wells producing from provincial Crown mineral rights was called a "royalty incentive period" (RIP) whereas wells producing from freehold mineral rights earned a "production incentive period" (PIP).

As of December 31, 1986, approximately 38% of the 1,592 wells capable of producing oil in the Province were operating under an incentive period (20% under RIP and 80% under PIP). Thirty-seven per cent of the 598 incentive wells in the province are located in the Waskada area while 31% are located in the Daly area.

The Manitoba Drilling Incentive program was instrumental in attracting oil companies to Manitoba over the past seven years.

It is estimated that since the program was implemented in 1979, the value of the incentive to industry has been in excess of $14.5 million.

The Drilling Incentive Program expired on December 31, 1986.

Oil Reserves

From 1973 to 1980, remaining established oil reserves in Manitoba declined at a rate of approximately 5% per year due to production and lack of new discoveries.

This trend began to reverse in 1980 as new discoveries were made in the Kirkella area. New discoveries in the Waskada area in 1981 further arrested the decline and as a result of additional development in the area in 1982 and 1983 reserves increased. This increase in the Province's remaining established reserves followed more than 16 years of decline.

As of December 31, 1986, the province's total remaining established crude oil reserves were estimated to be 8.45 million m^3 (53 million barrels) down slightly (4.3%) from 1985. The decrease can be attributed mainly to the drop in drilling activity throughout the year as a result of the crude oil price collapse.

CRUDE OIL RESERVES IN MANITOBA
1973-1986

YEAR	PRODUCTION (m^3)	ESTABLISHED RESERVE ADDITIONS (m^3)	REMAINING ESTABLISHED RESERVES (m^3)	YEARS TO DEPLETION*
1973	807 882	Nil	11 798 000	14.60
1974	754 667	15 000	11 059 000	14.65
1975	701 459	4 000	10 362 000	14.77
1976	633 322	7 000	9 735 000	15.37
1977	630 466	15 000	9 120 000	14.46
1978	598 354	22 000	8 543 000	14.28
1979	583 377	24 000	7 984 000	13.64
1980	563 482	314 000	7 735 000	13.73
1981	542 695	544 000	7 736 000	14.25
1982	582 322	733 000	7 927 000	13.60
1983	736 934	954 000	8 154 000	11.06
1984	793 284	663 000	8 024 000	10.11
1985	820 729	1 628 000	8 831 000	10.76
1986	823 322	439 000	8 447 000	10.26

* Remaining Established Reserves ÷ Annual Production

Petroleum Industry Employment

The precipitous fall in crude oil prices not only affected activity levels and revenues but also employment levels in the industry.

In 1986 direct industry employment decreased to approximately 310, a 15% decrease from 1985 levels. Of this total, approximately 75 person years were attributed to new geophysical and drilling activity, while the remaining 235 person years were associated with ongoing operation and maintenance functions of existing petroleum related facilities.

In addition to direct employment, there are indirect jobs created as a result of petroleum industry activity. For every 10 direct jobs created by the petroleum industry in 1986, there were between 10-15 indirect jobs created. This resulted in another 310-465 person years of indirect employment.

Industry Expenditures

As a result of the downturn in oil patch activity in Manitoba during 1986, it is estimated that industry spent only $86 million in the province compared with $139 million in 1985.

The total expenditures can be broken down into seven categories: exploration, development, land, producing facilities, producing costs, royalties and other.

The exploration component which includes, exploratory drilling costs, geophysical and geological work amounted to approximately $10.5 million.

Development costs include development drilling costs which accounted for approximately $15.9 million.

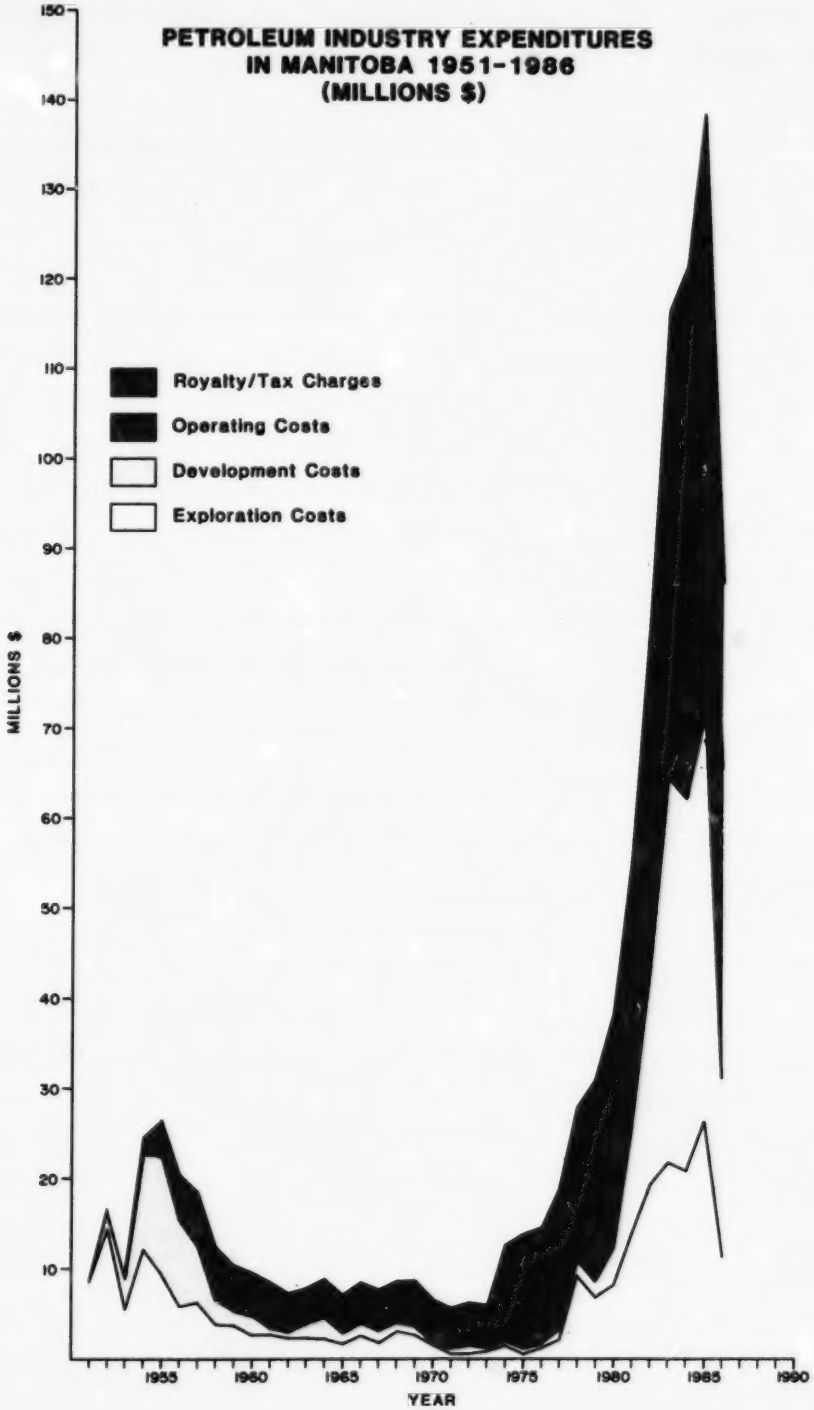
Land costs were based on freehold and Crown mineral and surface rights acquisition costs, fees and rentals. The total estimated cost of this component amounted to $5.1 million.

Producing facilities included mainly capital costs associated with field equipment and enhanced recovery schemes. Approximately $4.6 million were spent on this component.

Production costs were valued at $26.8 million and include well operating, flow line and gas plant costs.

Royalties included freehold production royalties, Crown production royalties and freehold oil taxes. It was estimated that this component was valued at $20.5 million for 1985.

Other costs in total industry expenditure include municipal taxes, right-of-way acquisitions and miscellaneous expenditures totalling approximately $2.8 million.



Source; Canadian Petroleum Association
1951-1984
Petroleum Division 1985-1986

1986 EXPENDITURES

Royalties-20.5 Development Costs-20.2
Operating Costs-34.2 Exploration Costs-11.3

1987 Forecast (New Incentives)

As oil prices have increased only moderately over the past several months, exploration and development activity in Manitoba is expected to remain sluggish throughout 1987.

From a low of around $14.00 Cdn. per barrel in July 1986, oil prices edged up to $19.50/bbl in December and as of March 31, 1987 were hovering around $21.00/bbl. Despite the increase in oil prices since July, 1986, oil companies continue to remain cautious and perhaps somewhat skeptical as to OPEC's ability in maintaining crude oil prices at current levels.

This factor combined with severely drained financial coffers, as companies try to maintain present operations and debt repayment, are two reasons why cash expenditures for exploration and development will likely not increase substantially over 1986 unless oil prices increase to the $25.00 Cdn. per barrel range and remain stable. The Petroleum Division expects prices to fluctuate in the $20-25/bbl range throughout 1987.

As of March 31, 1987 only 6 wells had been drilled compared with 99 for the same period in 1986.

To encourage companies to remain interested and active in Manitoba, the provincial government introduced two new petroleum incentive programs in March 1987. A new Drilling Incentive Program (which replaces the previous Manitoba Drilling Incentive Program effective January 1, 1987) provides successful operators with a "Holiday Volume" of oil which will be produced royalty or tax free. The "Holiday Volume" is dependent on oil price, the distance of the well from the nearest well cased for oil and gas production, plus the well's depth, producing formation and any qualifying dry hole credits assigned to the well. Total "Holiday Volume" for a well is limited to a maximum of 10 000 m^3 or 5 years of production, whichever occurs first.

The second program is designed to stimulate Enhanced Oil Recovery projects. Depending on initial oil production rates and water cut for wells in a new project, an operator of a new or enlarged enhanced oil recovery project will be able to produce oil at a reduced royalty or tax rate up to a maximum of 60 months.

These two provincial programs along with the federal government's announced Canadian Exploration and Development Incentive Program (CEDIP) should result in the drilling of between 50-75 wells in Manitoba during 1987 with possibly 40-65 new wells placed on production.

Crude oil production is expected to decrease slightly from 1986 to between 800 000 - 810 000 m^3, the first decrease since 1981.

With fewer wells being drilled, crude oil reserves are also expected to drop as new reserve additions fail to offset annual crude oil production.

On a brighter note, however, if oil prices continue to increase or stabilize, the value of crude oil production could range between $100 - 125 million compared with $95 million in 1986.

Likewise, as the value of oil increases, direct revenues to the Crown will also increase. Crown oil royalty revenue could range between $3.0 - 3.5 million while freehold oil taxes could increase to between $9.5 - 10.5 million, up from $2.6 and $8.7 million respectively.

However, Crown land sale revenue is not expected to reach $700,000 for the year as most oil companies remain vigilant of their cash expenditures.

Although Manitoba does have numerous favourable geologic prospects remaining to be explored and developed, most oil companies will probably take a "wait and see" attitude toward crude oil prices before committing significantly larger sums of money for new exploration and development.

MANITOBA OIL FIELDS - 1986

	DALY	TILSTON	WASKADA	COULTER	LULU LAKE	VIRDEN	WHITE-WATER	PIERSON	KIRKELLA	SOUTH PIERSON	SOURIS HARTNEY	OTHER AREAS	CONF. WELLS	TOTAL
DISCOVERY YEAR	1951	1952	1952	1952	1953	1953	1953	1954	1957	1961	1962	N/A	N/A	N/A
AVG. DEPTH TO PRODUCING FORMATION (m)	769	945	923	970	1 000	630	785	1 003	738	990	655	N/A	N/A	N/A
PRODUCING FORMATION	L	MC	MC/LAm	MC/LAm	L	L	L	MC	L	MC/LAm	L	LAm MC/L	N/A	N/A
WELL SPACING (ha)	16	16	16	16	16	16	16	16	16	16	32	16	N/A	N/A
WELLS CAPABLE OF OIL PROD. (DEC. 1986)	357	22	425	7	8	584	28	53	34	10	9	24	31	1 592
OIL WELLS PROD. (DEC. 1986)	304	17	344	1	7	542	22	44	28	8	7	14	29	1 367
1986 OIL PROD. (m^3)	167 050	6 947	248 705	751	3 995	320 496	19 895	20 958	8 559	6 498	2 571	4 376	12 521	823 322
CUM. OIL PROD. (DEC. 31/86) (m^3)	3 984 755	104 142	1 251 124	9 240	49 903	18 555 244	128 791	326 018	224 963	26 854	132 790	43 310	12 521	24 848 203
REMAINING ESTABLISHED RESERVES(m^3) (DEC. 31, 1986) (000's m^3)	1 079.1	41.6	2 235.8	.8	10.4	4 564.1	153.6	212.8	41.1	33.4	32.9	9.4	32.0	8 447

L = Lodgepole
LAm = Lower Amaranth
MC = Mission Canyon

GEOLOGICAL FORMATIONS IN MANITOBA

AGE Millions of years before present	ERA	PERIOD	EPOCH	FORMATION	MEMBER	MAX. THICK (m)	BASIC LITHOLOGY
	CENOZOIC	QUATERNARY	RECENT				TOP SOIL, DUNE SANDS
			PLEISTOCENE	GLACIAL DRIFT		140	CLAY, SAND, GRAVEL, BOULDERS, PEAT
		TERTIARY	PLIOCENE				
			MIOCENE				
			OLIGOCENE				
50			EOCENE				
			PALEOCENE	TURTLE MTN.	PEACE GARDEN	120	SHALE, CLAY AND SAND. LIGNITE BEDS LOCATED ONLY IN TURTLE MOUNTAIN
					GOODLANDS		
65	MESOZOIC	CRETACEOUS	UPPER CRETACEOUS	BOISSEVAIN		30	SAND AND SANDSTONE. GREENISH GREY. LOCATED ONLY IN TURTLE MOUNTAIN
				RIDING MTN.		310	GREYSHALES—NON-CALC. LOCAL IRONSTONE BENTONITE NEAR BASE. GAS FOUND
				VERMILION RIVER	PEMBINA	198	SHALE DARK GREY CARBONACEOUS NON-CAL. BENTONITE BANDS
					BOYNE		SHALE GREY SPECKLED CALC. BENTONITIC SLIGHTLY PETROLIFEROUS
					MORDEN		SHALE DARK GREY NON-CALC. CONCRETIONS, LOCAL ANO SILT
				FAVEL		40	GREY SHALE WITH HEAVY CALCAREOUS SPECKS BANDS LIMESTONE AND BENTONITE
100				ASHVILLE		115	SHALE, DARK GREY, NON-CALC. SILTY
			LOWER CRETACEOUS	ASHVILLE SAND			"SAND ZONE" 27m F.G. QTZ. S. OR SS.
				SWAN RIVER		70	SANDSTONE AND SAND, QTZ. PYRITIC SHALE—GREY, NON-CALC.
150		JURASSIC	UPPER JURASSIC	WASKADA		200	BANDED-GREEN SHALE AND CALC. SANDSTONE
				MELITA			BANDS OF LIMESTONE, VARI-COLORED SHALE
			MIDDLE JURASSIC	RESTON		45	LIMESTONE, BUFF, AND SHALES, GREY
				AMARANTH	UPPER EVAPORITE	45	WHITE ANHYDRITE AND/OR GYPSUM AND BANDED DOLOMITE AND SHALE
200					LOWER RED BEDS	40	RED SHALE TO SILTSTONE-DOLOMITIC OIL PRODUCING
		TRIASSIC					
		PERMIAN	(?)	ST. MARTIN COMPLEX		300	CARBONATE BRECCIA, TRACHYANDESITE (CRYPTO-EXPLOSION STRUCTURE)
250		PENNSYLVANIAN					
	PALEOZOIC	MISSISSIPPIAN		MADISON GROUP: CHARLES		30	MASSIVE ANHYDRITE AND DOLOMITE
				MISSION CANYON	MC—5	100	LIMESTONE—LIGHT BUFF, OOLITIC, FOSS. FRAG., CHERTY, SANDS SHALE AND ANHYDRITE, OIL PRODUCING
					MC—4		
					MC—3		
					MC—2		
300					MC—1		
				LODGEPOLE	FLOSSIE LAKE	165	LIMESTONE & ARG. LIMESTONE LIGHT BROWN AND REDDISH MOTTLED ZONES OF SHALEY, OOLITIC, CRINOIDAL & CHERTY OIL PRODUCING
					WHITEWATER LAKE		
					VIRDEN		
					VIRDEN / REDVERS		
				BAKKEN	UPPER	30	2 BLACK SHALE ZONES - SEPARATED BY SILTSTONE OIL SHOW HIGH R.A. KICK
					MIDDLE		
350					LOWER		
		DEVONIAN		LYLETON (SAWBONES)		30	RED SILTSTONE AND SHALE DOLOMITIC
				NISKU (SAWBONES GROUP)		40	LIMESTONE & DOLOMITE, YELLOW-GREY FOSS. POROUS, SOME ANHYD
				DUPEROW (SAWBONES GROUP)		170	LIMESTONE & DOLOMITE, ARG. & ANHYDRITIC IN PLACES
				SOURIS RIVER 1-ST RED (MANITOU GROUP)		120	CYCLICAL SHALE, LIMESTONE & DOLOMITE ANHYDRITE
				DAWSON BAY 2-ND RED (MANITOU GROUP)		60	LIMESTONE & DOLOMITE, POROUS, ANHYDRITE—LOCAL SHALE RED & GREEN
				PRAIRIE EVAP (ELK POINT G.)		120	SALT POTASH & ANHYDRITE, DOLOMITE INTER—BEDDED
				WINNIPEGOSIS (ELK POINT G.)		75	DOLOMITE, LIGHT YELLOWISH BROWN REEFY
				ELM POINT (ELK POINT G.)			LIMESTONE—FOSS. HIGH CALCIUM
400				ASHERN (ELK POINT G.)		12	DOLOMITE AND SHALE—BRICK RED
		SILURIAN		INTERLAKE GROUP		135	DOLOMITE YELLOWISH—ORANGE TO GREYISH—YELLOW FOSS. SILTY ZONES
		ORDOVICIAN		STONEWALL		15	DOLOSTONE, GREYISH YELLOW, BEDDED
				STONY MOUNTAIN	WILLIAMS ISLAND	30	DOLOMITE—YELLOWISH—GREY SHALEY
					GUNTON		
					PENITENTIARY		DOLOMITIC—QUARY—YELLOW FOSS.
					GUNN	50	SHALE RED—GREEN FOSS. LIMESTONE BANDS
450				RED RIVER	FORT GARRY	170	DOLOMITIC LIMESTONE, MOTTLED AND DOLOMITE
					SELKIRK		
					CAT CAD		
					DOG HEAD		
				WINNIPEG	UPPER UNIT	60	SHALE, GREEN, WAXY, SANDSTONE INTERBEDDED
500					SANDSTONE		SAND, SANDSTONE, QUARTZOSE
550		CAMBRIAN		DEADWOOD		60	SAND, BLACK TO GREEN—GREY WAXY, GLAUCONITIC SILTSTONE & SHALE, GREEN—GREY TO BLACK, VERY EDGE OF S.W. MANITOBA ONLY.
	PRECAMBRIAN						ACID & BASIC CRYSTALLINES & METAMORPHICS